

# THE IRON AGE

New York, April 5, 1928

ESTABLISHED 1855

VOL. 121, No. 14

## Handling of Materials Is Feature of Plant Changes

*Chicago Company Readapts Its Buildings and Equipment for Increased Production of Gas Stoves—Method of Loading Trucks and Various Applications of Mechanical Conveying Are Noteworthy*

**O**CCASIONALLY a manufacturer is compelled to change from one product to another to keep a step ahead of public demand. In taking such a step he will naturally try to choose a product with a wider market appeal. At the same time he will give full consideration to the selection and arrangement of production and material handling equipment so that costs will be held at the minimum consistent with quality of product.

In 65 years of manufacturing experience the Cribben

& Sexton Co., Chicago, has kept in close touch with the pulse of demand. Until 30 years ago the bulk of its business was in plumbing supplies, but about 1897 it sold that branch and swung into the production of coal ranges and, to some extent, gas stoves. As rapidly as localities were served by gas housewives were quick to recognize the advantage of that fuel as compared with coal. The rural trade, to a large extent, was left for the coal range manufacturer, although even in this field increasing competition from oil stove makers was



*Enameling Furnaces Are Charged by Means of a Buggy With a Rising and Lowering Bed. The buggy takes its load from a carriage which is suspended from an overhead track*

encountered. To make a long story short, the Cribben & Sexton Co. still manufactures coal ranges, but not in quantities comparable with its output of gas stoves.

#### Large Press Department Installed to Make Gas Stove Parts

The decision to swing over to heavy production of gas stoves made it necessary to use pressed metal on a larger scale, thus releasing part of the foundry capacity and entailing the expense of constructing a large press department and installing a complete assortment of machine tools for the production of dies. About the time this was done it became evident that social prestige was diminished unless the kitchen gas stove was red, green, yellow or some other color besides the conventional gray, black or white. With attractive gas stoves in heavy demand, it occurred to the manufacturer that a yellow or light blue enameled coal range would strike the fancy of the "domestic engineer," whose duty for years has been to blacken an old-fashioned stove.

Probably the most far-reaching change resulting from tendencies in stove design and demand has been a wider use of pressed metal parts. Before this trend



*To Prevent Damage to Enameled Parts Through Their Rubbing Against Each Other, Platform or Skeleton Trucks Are Used. In loading a platform truck, such as the one shown above, the operator mounts one tray over another as rapidly as each is covered with enameled parts. The tray used consists of end spacers and crosswise slats*

got under way, 180 molders and two cupolas were employed in the Cribben & Sexton foundry. At the present time stove castings occupy only one cupola and 110 molders, and a larger amount of jobbing work is being done.

Three buildings make up the Cribben & Sexton plant. The foundry is a one-story building, as is also the structure which houses the enameling department. The third building is of the multi-story type with basement. Shears and forming presses are located in the basement, and the finished stock room and assembling department are on the upper floors.

Careful attention is given to economy in materials-handling from the time the pig iron for the foundry is unloaded from the railroad cars and placed on piles that are separated by concrete runways. Cupola charges are made up in four-wheeled box trucks which are moved by means of an electric battery lift truck. The same transport equipment is used to remove castings from the pouring floor to the cleaning department and from the cleaning department to the enameling building.

#### Automatic Machines in Polishing Room

Incidentally, it is standard enameling practice in this plant to apply the undercoat to castings within 48

min. after the casting is sand blasted. This time limit is set to prevent oxidation of the casting prior to its receiving its protective coating of enamel. Parts that are to be nickel-plated go to the plating department, where standard equipment is used.

Ingenious equipment for handling material features the polishing room. One machine, used for polishing the tops of stoves, is 50 ft. long and is equipped with 24 emery wheels. It is entirely automatic, a moving platform carrying a stove under the different wheels. In this department also is an automatic pipe polisher, which employs rotating idlers to force the pipe along and against power-driven polishing belts.

#### Parts Mechanically Handled through Enameling Furnace

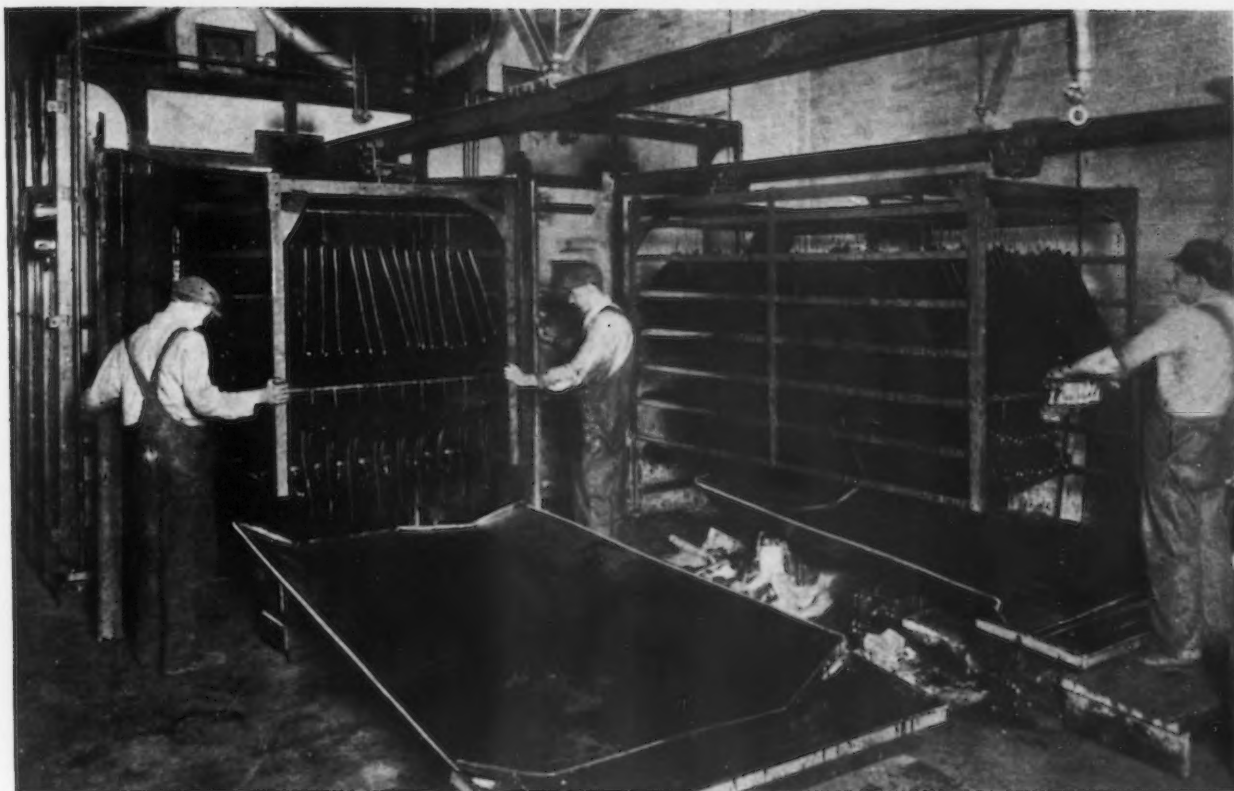
Castings to be enameled are mounted on small metal racks. These are placed in spray booths, and liquid enamel is applied with air guns. The racks are then delivered to a dryer, where they remain from 30 min. to 1 hr. in a stream of air heated to 125 deg. Fahr. by radiator-type heaters, which are equipped with motor-driven fans. Following the drying operation, the racks or trays are placed on either one of two carriages that hang from a structural frame which is directly in front of the burner furnace. This furnace has a capacity of 7500 to 10,000 lb. daily. As soon as a carriage is loaded it is picked up by a charging buggy, which is designed with a rising and lowering bed. The furnace doors are then opened, and the charging buggy delivers the load into the furnace, after which the charging buggy bed is lowered and withdrawn while the burning operation of 30 min. duration is carried on at temperatures that range between 1300 and 1350 deg. Fahr.

#### Special Trucks Used to Prevent Damage to Enamel

As previously stated, castings are delivered to the enameling department in box trucks. After the enamel is applied great care must be used in handling the various parts so that the enamel coat will not be damaged. Therefore the trucks that are spotted at the spray booths are of a skeleton type with four corner uprights fixed to the truck floor. Cross bars and trays are superimposed on the truck as the spray operator needs space for newly enameled parts. Trucks of this type prevent considerable losses, because they eliminate the necessity of sliding parts between shelves, with the danger of one part rubbing against another or of a part rubbing against a shelf, thus destroying or impairing the enamel coat. Many of the trucks used in this department consist merely of a platform and wheels. A truck of this kind is spotted at a work station. Here within reach of the operator are a number of wooden trays, which consist essentially of end spacers and a number of crosswise slats. The operator mounts a tray on the floor of the truck and, after having covered it with the product on which he is working, places another tray on top of the first one. In this way he gradually builds up the truck load to as great height as is safe for transport purposes.

#### Sheet Metal Handled by Chute, Elevator and Truck

Sheets for press work are unloaded from railroad cars and passed down a chute to the press department, in the basement of the multi-story building, where they are placed in stock. After having been sheared and formed they are loaded in box trucks, which are moved by an electrically operated truck to the end of the building, where an elevator brings the load up to the yard level. The electric truck then transports its load over a concrete roadway to the enameling building, where the formed sheets are delivered to the cleaning department. Here they are first dipped for 10 min. in a caustic solution, which removes all traces of grease. They are then given a cold water bath and allowed to remain 8 min. in a 7 to 8 per cent sulphuric acid bath heated to about 75 deg. Fahr. The next operation is to rinse and sub-



*Parts That Are to Be Japanned Are Hand-Dipped and Suspended on a Rack Which Hangs from an Overhead Trolley Beam. The drip pan is located only a few feet from the japanning oven*

merge the sheets in a soda solution to assure the removal of any acid solution which may remain on them. The soda tank is heated by means of a steam coil. The sheets attain the temperature of the soda solution before they are removed and, therefore, are warm enough when brought into the air so that evaporation is rapid and they are quickly air-dried, thus avoiding the installation of a dryer.

Sheet metal parts are hand-dipped in the ground coat, which is always of the same color regardless of the color of the finished coat. Trucks used for trans-

porting enameled pressed steel parts are similar to, and in many cases interchangeable with, those used for handling enameled castings. The burning period for the ground coat is 4 min. Each part is then given a thorough inspection and, if passed, is delivered to a spray booth, where it is given the first finish coat. Before burning the first finish coat some stove parts are brushed back by means of stencils and brushing wheels in order to produce an attractive trim and also to protect the enamel from chipping on edges that are bolted together. Finish coats are burned for 2½ min. at a



*Stoves Are Assembled and Tested on a 130-Ft. Conveyor Line. Thirty men assemble 225 stoves in a 9-hr. day*



temperature of 1600 deg. Fahr. Careful inspection is given each part before the final color coat is applied. If defects discovered are not too serious, they are re-touched and then the second finish coat is applied and burned.

#### Belt Conveyor Carries Parts to Store Room

All enameled parts, including both castings and pressed metal, come together in a final inspection room, which is on the ground floor of the enameling building. From this room a 36-in. canvas conveyor belt pitches upward at a 17-deg. angle and then extends overhead across the yard to a store room, where a complete line of all parts is kept to facilitate the assembly operations. The conveyor is completely inclosed in a structure which is sufficiently high to provide headroom above an adjacent walkway. This equipment was furnished by the Chain Belt Co., Milwaukee, Wis.

Enameled parts placed on this conveyor are so spaced that they do not touch. Formerly enameled

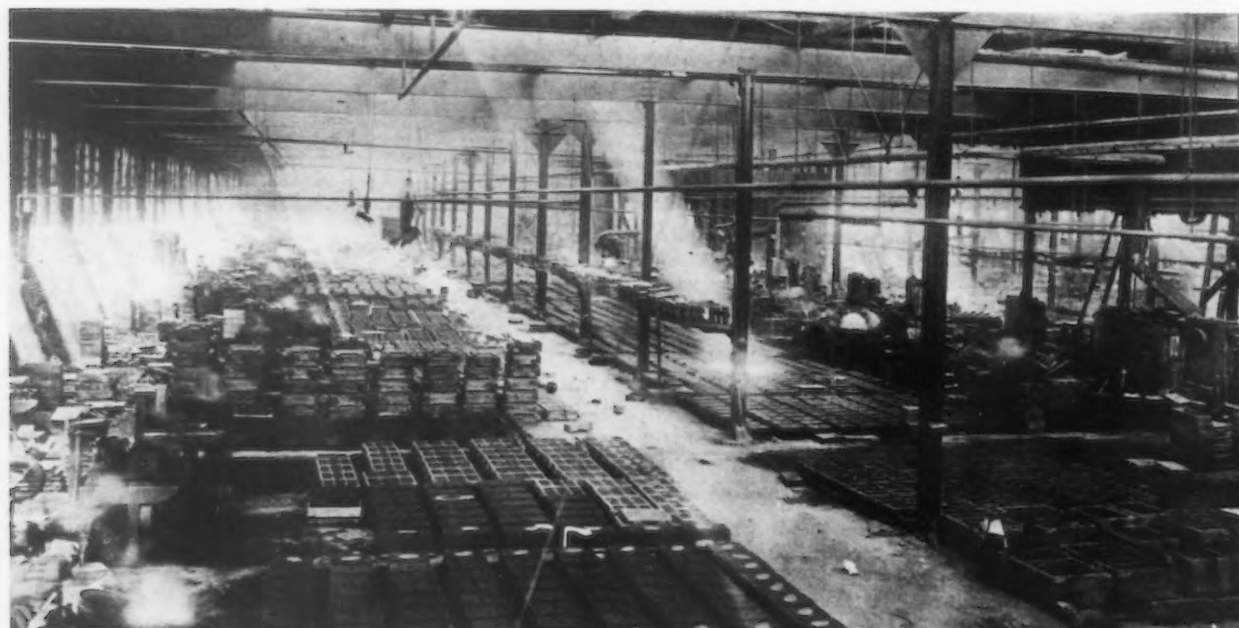
a day's run materials may be delivered from the store room back to the enameling department if need be.

#### Monorail System Serves Japanning Furnaces

Parts manufactured in the multi-story building that can go directly to the stock room are transported from one floor to another by means of elevators. In this building are two japanning furnaces provided with a loop monorail system, from which six baskets are suspended. Two baskets are always in the oven and two are spotted in front of the charging door, where the parts to be japanned are dipped and suspended over drip pans. Two baskets that are being unloaded are run out on the free length of monorail, which is a return line, to the front of the furnaces.

#### Conveyor 130 Ft. Long Serves Straight-Line Assembly

The assembly and crating departments are on the same floor with the store room. Assembly starts on benches, where the skeleton of the burner and the oven



*The Foundry Is Well Equipped to Supply All the Needs of a Modern Stove Factory. Proper ventilation and the admission of daylight are features of this building*

parts were transported from the enameling building to the store room in trucks. It was necessary at that time to carefully pack each part in the truck, and even then there was always the danger of chipping and scratching surfaces, which necessitated an additional inspection in the store room and the rejection of many parts that had reached the stage where they should have been ready for assembly. With the conveyor system, the final inspection is made in the enameling department. The conveyor is reversible so that at the end of

are put together. A wooden skid, which is part of the shipping crate, is bolted to the skeleton, which is then placed on the receiving end of a 130-ft. assembly conveyor. Thirty men work at given spaces on both sides of this conveyor. Before a stove reaches the end of the conveyor it has been completely assembled, accessories have been wired to it, gas connections have been tested for leaks and burners have been adjusted for proper combustion. The assembly schedule on this conveyor is 225 stoves in a 9-hr. day.

### American Steel & Wire Co. Studies Special Properties of Wire

Research with various forms of wire which, when under tension, are subjected to vibration, is being undertaken by the American Steel & Wire Co. in a laboratory at 5149 Agatite Avenue, Chicago. The work is under the direction of William Braid White.

Among the instruments are two that have been developed especially for piano wire investigations. One of these is a "monocord," which consists essentially of an iron frame similar to a lathe bed, except that the sides of the horizontal box member are open and a longitudinal slot extends the full length of the top. At the left end of the frame is a tuning wheel and a jaw for holding one end of the wire. At the opposite end of the frame is a spring-loaded dynamometer. A movable

bridge makes this machine adaptable for testing strings from 1 in. to 6 ft. long. A piano action slides along the lower member of the box frame, and, when the key is struck, the hammer reaches the string through the slot in the top section of the frame. The piano action can be moved to strike the string at any point in its length.

Photographic studies of strings under vibration are made by the use of an oscillograph furnished by the Westinghouse Electric & Mfg. Co., Pittsburgh. This instrument is special in that it is adaptable to the study of low-frequency vibrations, the range being from 30 to 50,000 cycles per second. This unit, including a microphone, is portable and may be used for experiments on the "monocord" or on any stringed musical instrument.



# Pipe Bends Made by New Process



Typical Large Bend Made in 16-In. Pipe to 40-In. Radius

Forcing Hot Pipe Over Horn-Shaped Mandrel Produces Short-Radius Bends Without Buckling at Inside of Turn or Excessive Thinning at Outer Diameter

**P**RODUCTION of short-radius pipe bends by a new and unusual process has been started by the Pipe Bending Process Co., Louisville, Ky. The bends are really short arcs of pipe made on a production basis in a standard series of sizes, and can be made of any "bendable" material in any thickness. They should not be confused with the long sweeping curves made to order for expansion joints in steam or hot water lines. Their utility lies in a separate and distinct field, taking the same place in welded pipe lines that cast fittings, elbows, goose necks and returns do in screw-coupled lines.

The manufacturers believe that a definite series of bends with long and short radius will take care of practically every requirement in the way of a fitting for welded piping. Standardized shapes make available to the trade those advantages incident to mass production, such as quick delivery, low cost and small inventory.

A typical standard series of bends would include 180-deg., 90-deg. and 45-deg. turns, of a single radius, for each common size of pipe. It is apparent that any angle of bend can be cut from the 180-deg. return bend. Should it be found inconvenient to anticipate an exact requirement, a small supply of 180-deg. bends in long and short-radius types will provide for any kind of turn at less cost, it is said, than if the pipe were mitered and welded in the field.

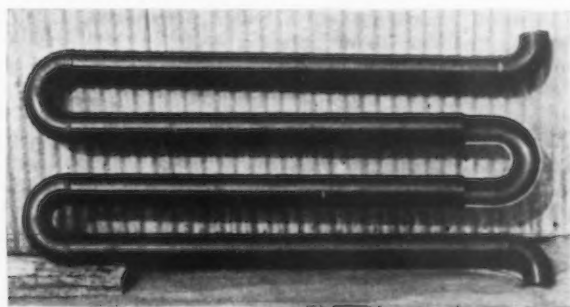


Fig. 2—Flat Coil Spaced at Two Diameters

Steel, copper, brass, aluminum and special alloys have been successfully formed into short-radius bends by the Louisville company. Bends are furnished with square or chamfered ends as desired, but are normally without tangents or straight lengths, although short tangents for threading or welding on flanges can be made by an additional press operation. When long tangents are necessary, they are welded on.

In contrast with other methods of bending, the company finds that thin tubes of large or small diameters can be bent easily to radii of from one to one and a half pipe diameters without buckling the inner walls.

The manufacturing process was invented in Germany and is protected by patents. The essential parts

of the equipment consist of a gas furnace, special mandrels and a hydraulic press. The ram from the latter travels over a long steel shaft, fixed into the stationary head of the hydraulic cylinder. Over this shaft a straight length of pipe is slipped until it strikes a flat ring fixed on the nose of the ram. After the straight pipe is placed on the shaft, a horn-shaped mandrel is attached to the forward end of the shaft by a double-threaded turnbuckle coupling. The ram then moves the pipe outward until the forward end

Fig. 1—Complicated Outlet Pipe Made by Three Methods: Left, Mitered Joints, Welded; Middle, Screw Fittings; Right, Short-Radius Bends, Welded



binds against the turn at the base of the mandrel. A gas furnace is then moved up to surround the mandrel and the pipe end, and three gas blow torches play flames on the end of the pipe until it is plastic. More pressure is applied from the hydraulic cylinder so the pipe is pushed over the mandrel as fast as it is hot enough to work. The design of the mandrel determines the curvature of the bend and the wall thickness, and variations from a straight bend to a wide coil are obtained by the location of the heat during the operation.

Applications of the bend are numerous. Changes in direction in welded pipe lines can be secured with comparative ease by using different combinations of

Fig. 3—Four-Inch Pipe Coiled in Spiral with 12-In. Outside Diameter



the standard unit. To illustrate this fact a tortuous pipe string was made up, the same dimensions built using malleable iron fittings, and a third by mitering and welding all joints (Fig. 1). A tank of water was filled and drained three times, once through each of these strings. The time noted was as follows:

With short-radius bends.....	7 min.
With cast elbows.....	8.5 min.
With mitered joints.....	12 min.

This indicates that pipe on a true curve, smooth inside, sets up fewer eddy currents at changes in direction and has a greater capacity of flow.

Tests of these bends are said to show them to be equivalent to standard straight pipe in strength.

Of interest to fabricators of flat coils in which a close spacing of pipe is important is the return bend shown in Fig. 2. This coil is made of straight pieces of pipe of standard thickness welded to bends with a

radius equal to the pipe diameter, thus providing a center-to-center spacing of only twice the diameter of the pipe. Full strength is maintained at the returns; the wall thickness is correct, both inside and outside, as shown by the bend which has been cut open.

Spiral coils, to give a maximum heating or refrigeration area in minimum volume, are made in any pipe size. Fig. 3 shows a coil of standard 4-in. pipe formed to a diameter of only 12 in. It is composed of a single section, the only weld being at the outlet. Similar coils of indefinite length can be made by welding together duplicate sections.

In underground piping of any kind such bends afford an easy means of passing various obstructions. If flanges are desired, they can be gas, electric or hammer-welded on the bend section, thus providing a fitting for attaching standard flanged castings.

## STEEL HOUSES IN GERMANY

### Dwellings of Steel Plate Construction Adapted to Mass Production by German Steel Trust

WASHINGTON, April 3.—Domestic steel producers have shown considerable interest in a circular issued by the iron and steel division, Department of Commerce, on the subject of building steel houses in Germany. The circular, based on a report received by Hugh S. Fullerton, consul at Cologne, shows that the steel houses of German manufacture which have been on view or on sale in the Cologne district appear to have features similar to those found in structures in the United States. Durability, warmth and protection from dampness are outstanding selling points in these houses, and it is proposed to have their parts available in stock in order that no time may be lost in supplying the public. It is also planned to have the construction so simple that the purchaser may complete the house himself merely by putting the various parts together and following directions of an elemental nature. The report indicates that German manufacturers obtained their ideas from achievements in the steel house construction field in the United States and England.

#### Houses Will Be Built in Quantities

A report has been confirmed that the Vereinigte Stahlwerke, the German steel trust, is soon to begin mass production of steel houses and it is declared to be probable that many settlements for industrial operatives, similar to one at Duisburg-Laar, will be the result. Row and block houses of steel construction are reported to be in strong demand in the Rhineland, and large industrial firms are beginning to find in them a ready and rapid solution for housing problems. At present, the report says, the plant of the Vereinigte Stahlwerke at Weidenau, Westphalia, is supplying the demand for steel houses in western Germany, while it is understood that the BAMAG (Berlin-Anhaltische Maschinen-Fabrik Aktiengesellschaft) is intrusted with this responsibility for eastern Germany. The German firms of Gropius, Holzman, Phonix and Czech are reported to be producing or experimenting with steel house construction. The so-called "Boehlerhaus system" (Viennese), employing interior steel plates and plates covered with plaster for the exterior, is said also to be used in some parts of Germany.

#### Walls and Roofs of Steel Plates

Describing the steel houses in the Cologne district, the report says: "The roof and the side walls are made of strong steel plates which are connected by means of screws with the rims which are turned. Wood borders, which are affixed to the latter, serve as supports for the inner partition walls, consisting of light boards (Tekton plates, etc.) which are nailed on them. Between the outer steel wall and the inner light boards is an air space for protection against cold and sound. The walls, with a thickness of 14 cm., which have been

installed in a very short time, are claimed to be as much of an insurance against cold as a brick wall of 51 cm. thickness.

"As the steel plates are all of uniform size, 1.15 m. in width, it is possible to build the house in any desired length. It is also practicable to divide the dwelling space into more spacious rooms if desired. As the partition walls, apart from a supporting middle wall, have no basic connection with the outer walls, they may be transferred according to the individual desires of the purchaser. Construction, therefore, is very simple. The types described and now being manufactured to the greatest extent in Germany are the three, four, and five-room dwelling.

"The foundation is made with concrete walls, 30 cm. thick, beneath the outer walls. Usually, one-third to one-fourth of the building space is occupied by cellars. The roof consists entirely of steel. The steel sheets require no stays to support them so that no framework is required. Doors and windows are furnished in several sizes."

#### Costs Are Very Low

A five-room house, with two attic rooms, varies in cost between 6,000 and 10,000 marks, or about \$1,429 and \$2,390. A four-family structure, with cellar space under every room on the ground floor, is quoted at about 22,000 marks, or about \$5,238. Each of the four apartments involved has 50 square meters of dwelling space. To complete steel houses of all sizes in this part of Germany, three or four weeks are required, depending upon the size. That so short a period is needed for the construction contributes in no small degree to the low cost of the completed building, as labor charges are reduced to a minimum. According to specifications for inner fittings, the price for a one-family house, consisting of two rooms, plus kitchen, bath and closets, ready for occupancy, inclusive of installations for gas, light and water, amounts to from 6,000 to 7,000 marks, or about \$1,429 to \$1,667. These figures do not include the cost of fittings for the bath and kitchen.

The weight of a one-family steel house, all materials included and ready to be put together, is approximately 50 tons, according to the claims of German manufacturers, while a stone house of similar dimensions weighs from 150 to 175 tons.

The Interstate Commerce Commission has suspended from March 29 to Oct. 29 the operation of tariff schedules which propose to cancel commodity rates on iron and steel articles, in less-than-carload lots, from the Pittsburgh district to Pennsylvania Railroad stations between Salisbury, Md., and Portsmouth, Va., and to apply fourth class rates instead. The proposal would result in increasing the rates from 47.5c. to 48c. per 100 lb.

Perin & Marshall, consulting engineers, New York, have moved to the seventeenth floor, Salmon Tower Building, 11 West Forty-second Street, New York.

# Why So Much Talk About Safety?

Considerations of Responsibility Both to Society and to Shareholders—Safety of Workers Menaced by Automobiles

BY W. H. MEESE\*

VIEWING the question of industrial safety from the angle of public safety, it appears that there was no grave question of the safety of the public until the advent of the automobile. Today we have in the United States more automobiles than telephones. With the tremendous increase in the number of cars, the increase in the number of automobile accidents has been enormous—so great, in fact, that adequate protection for the public has almost got out of hand.

We recently prepared statistics in our company, which showed that an employee's chances of losing time from being hurt outside of employment were twice as great as that of being injured while at work. Think of that condition—when a few years ago it was felt necessary to legislate industry into safe practices. No doubt, statistics of other industries would prove the same point.

With industrial accidents going down, motor accidents are decidedly on the increase. The Metropolitan Life Insurance Co. paid in accident claims during 1927 about \$10,000,000. Deaths from motor vehicles were the most important, both from the number of deaths and the amount of claims. Over \$2,500,000 was paid by that company alone in claims arising from motor vehicle fatalities, an increase of 67.6 per cent since 1920.

In Cook County (Illinois), since Jan. 1, 196 people have been killed in automobile accidents. In most of these cases the people killed or injured were going about their business with no more thought of possible injury or death than any one of us in this room has at this moment.

## Irresponsibility at the Steering Wheel

Yet this tremendous increase in motor deaths and accidents is not greatly to be wondered at, when it is remembered that there are about 30,000,000 drivers. In other words, one person in every four in the United States is supposed to be capable of handling a motor car—a car which in an instant may become a juggernaut of destruction. Again, bearing in mind that nearly 500,000 persons in this country are confined in institutions maintained for irresponsible people, it surely looks as if we, as a people, are willing to take some long chances with ourselves.

In 1927 there were over 14,000 motor accidents in Chicago alone. Ten thousand adults and 4600 children were injured, and over 600 adults and 200 children were killed. Many of us came from small farming communities of less than 1000 souls. Picture every man, woman and child in your little home town killed by motor cars within a year.

Industry would not for one moment think of intrusting to inexperienced hands the operation of a punch press, drill press, or a high-powered machine. In filling a vacancy one insists upon the applicant meeting certain necessary requirements.

The State, in fact, prohibits the employment of an individual under 14 years of age and between the ages of 14 and 16 he must present a working certificate. The main purpose, of course, in so far as the State is concerned, is to see that the boy's education is continued, at least until he is 17 years of age. But another real reason is to postpone until that age his introduction to industrial life, and the machine hazards which inexperienced hands might meet.

At the same time, another law permits any boy or girl, provided he or she is accompanied by an adult person, to drive an automobile which, in an instant, can be changed from a pleasure vehicle to an instrument

of destruction. And any person 16 years or older, is, by law, qualified to drive a car on his own responsibility.

As this daily toll of injuries and deaths from automobile accidents mounts higher and higher, I believe it is time to consider seriously the adoption of more rigid requirements for persons who are to be allowed to operate motor vehicles.

## Safety Promotion Accomplished in Industry

Within the memory of most of us, the danger of snuffing out a life existed primarily in industry. Industry was on the defensive. Finally the recognition of the hazards of industry, and the possible loss of the breadwinner of the family, resulted in legislation regarding guarding of machines, workmen's compensation acts, industrial boards and other means of insuring that industry did carry what the law considered was its responsibility.

Industry proceeded to see that its machines were well guarded, only to find that, even with the guards, the number of accidents did not decrease materially. Then industry began to preach to its personnel the gospel of "Safety First" and the accident ratio began coming down.

During the 10 years preceding 1925, our own company expended about a million dollars in machine guards. In 1925, with our equipment as well guarded as it is today, our lost-time accidents were 4.5 per 1000 employees per month. In 1927, after an intensive effort to train our people to think, talk and act safety, our lost-time accidents were only 1.2 per 1000 employees per month. And we don't believe that we have reached the ultimate.

## Small Plants Must Fall in Line

It may be argued that the smaller industries cannot afford to devote as much time and effort to safety work as do some of the larger ones. I do not believe they can afford not to. No matter what the business is, large or small, its owners are interested in eliminating waste and improving methods of operation so that the plant may be run efficiently. But how can efficiency be had, without consideration of the men and women who are the plant? Machines without competent operators are worse than useless.

The extent of the cooperation of the men and women in the plant largely determines the success or failure of the enterprise. To make that cooperation possible, if for no other reason, management is justified in making any expenditure necessary to keep its force safe.

If industry will fully meet its moral obligations to its workers, it will not need to worry much about its financial responsibilities to its stockholders. Industry has made splendid progress in its safety work, as industrial statistics show, but we have by no means approached its possibilities.

A shipment of 22 all-steel passenger cars was made March 16 by the American Car & Foundry Export Co., to Sao Paulo, Brazil, for the Paulista Railroad. This is the first all-steel passenger equipment installed on South American railroads. There are 7 first-class coaches; 6 second-class coaches; 3 parlor cars; 2 dining cars; 2 mail cars and 2 baggage cars. These cars were built at Berwick, Pa.

The Erie Railroad Co., development service, has issued an industrial map of its system for use in the locating of new industries. The map is available at the company's offices, 50 Church Street, New York.

\*Assistant works manager, Hawthorne Works, Western Electric Co., Chicago. Extracts from an address at the sixth annual Mid-West Safety Conference, March 19, at Chicago.



# Cap Screws Made by New Method

Blank for Threading Produced by Extrusion Process—Tumbling and Lubricating Machine, Electric Heat Treating Furnace and Quenching Machine Are Features

BY FRED L. PRENTISS\*

TO satisfy the more exacting requirements of the automotive industry, manufacturers of cap screws have given increased attention to improving the quality of their product. The importance of this small part in the construction of a motor car is indicated by the fact that about 400 cap screws are used in the average motor car, and it is stated that the new Ford Model A, taking less than other cars, uses nearly 300.

Recent improvements in manufacturing processes in making cold-headed cap screws include a new method that is employed by the Cleveland Cap Screw Co., Cleveland. This method is designed to increase the quality of the product both in accuracy and in tensile strength and, at the same time, to save material and to reduce the cost of manufacture as compared with the usual method of cutting the thread. An increase of 30 per cent in tensile strength is claimed for the product, as compared with cap screws made by the ordinary upset method. The process used was developed by Charles Kaufman of the Cleveland Cap Screw Co. and is covered by patents owned by that company.

One of the important parts in the process is the heat treating, which is done in a recently installed electric furnace, which insures close temperature control and, consequently, uniformity in the heat treating operation and a finished product that is very uniform in hardness. The furnace was built by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

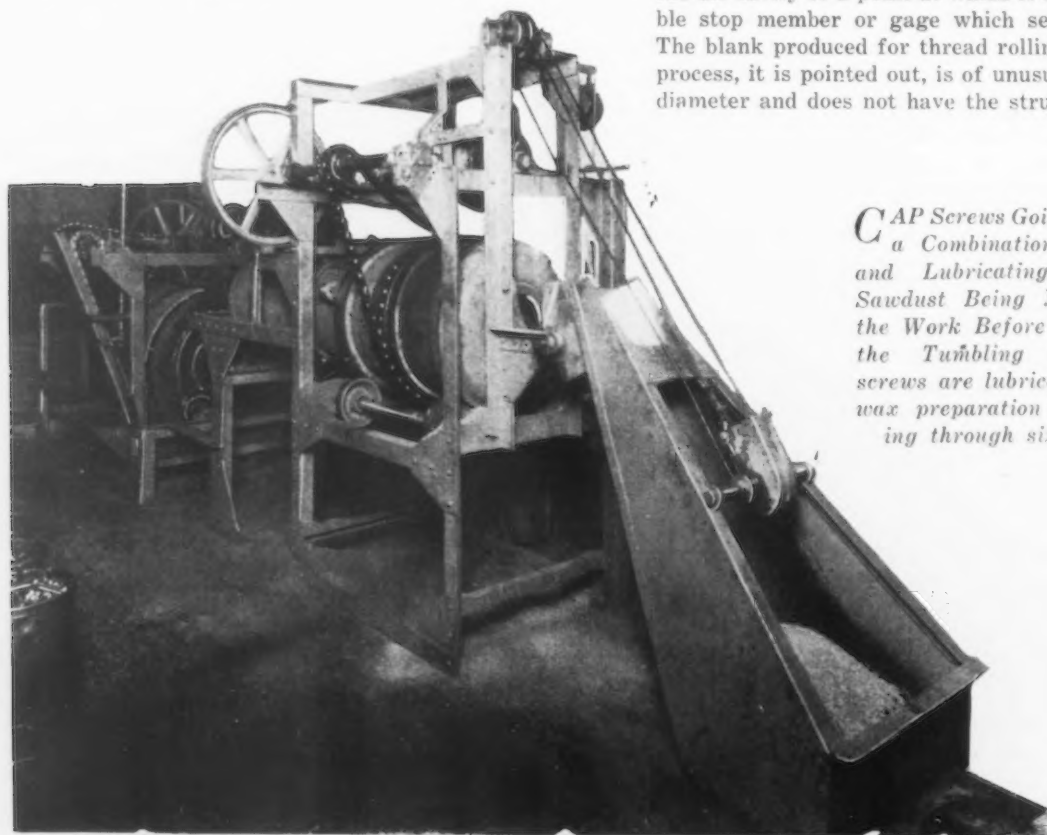
\*Resident editor THE IRON AGE at Cleveland.

In the method commonly employed in making cold-headed cap screws the threads are rolled on the blank in the original diameter of the mill stock and the portion of the blank that forms the shank or body between the threaded portion and head is built up by being expanded in a die by the upsetting process, so that its diameter corresponds to the external diameter of the threads. As a part of the same upsetting operation the head is formed.

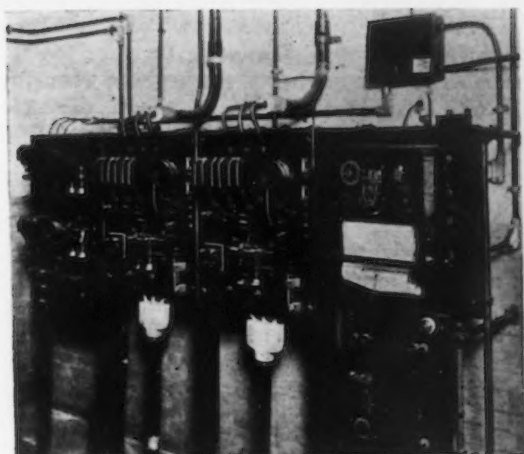
## Wire Reduced to Proper Pitch Diameter Simultaneously with Heading

Under the new process, wire of the same diameter as the body of the unthreaded portion of the finished screw is fed into the solid die of a double-stroke header of a standard type and is cut off to the proper length. As the wire is forced into the die the portion to be threaded is reduced in diameter to the pitch diameter of the thread to be formed. The heading operation is completed on the second stroke of the plunger.

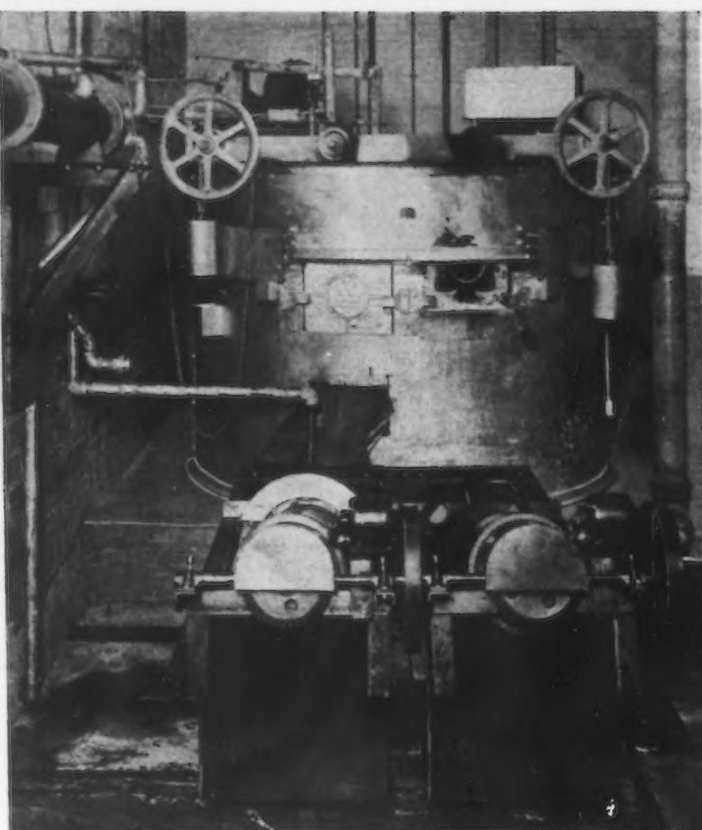
The female die member, which is stationary, has an irregular-shaped cavity including an outer head-forming portion, a section of smaller diameter or approximately the same diameter as the stock and, at the base of this, a section having a further reduction in diameter in which the stock is forced, decreasing the diameter of the portion to be threaded to the pitch diameter of the thread and lengthening that part of the blank by the drawing or extruding process. The stock is driven into the die cavity to a point at which it engages an adjustable stop member or gage which serves as an ejector. The blank produced for thread rolling by the extrusion process, it is pointed out, is of unusually accurate pitch diameter and does not have the structural weakness of



*CAP Screws Going Through a Combination Tumbling and Lubricating Machine, Sawdust Being Mixed with the Work Before It Goes to the Tumbling Mill. The screws are lubricated with a wax preparation before going through sizing dies*



**U**NIFORMITY in the Heat Treating Operation and in the Hardness of the Finished Product Is Secured by Passing the Screws Through an Electric Furnace of the Rotary Type. From the furnace the work is dumped into a quenching machine. There are two of these machines, one for quenching carbon steel screws in water and the other for oil quenching alloy steel screws. At the left, the control equipment for the furnace



crystallization. An outstanding feature of the process is the reduction of the wire to the proper pitch diameter at the same time that the heading operation is performed.

The part of the blank that is reduced in diameter is given a skin or surface hardening by the drawing process, which, it is pointed out, is of advantage in steel used for screw-forming purposes. As the shank retains its original diameter, it can be of any length, which is also true of the part to be threaded. As previously stated, the diameter of the shank is the same as the stock, but should there be any variation in the size of the stock the shank portion is enlarged or reduced in the die, assuring greater accuracy, it is said, than is provided by mill tolerances.

#### Less Severe Upsetting Blow Reduces Possibility of Crystallization

Since the head is formed of larger stock than is usually used in the cold-heading process, not as severe an upsetting blow is required in forming the head as would be necessary were the shank and head upset from smaller stock as in the more common process. Consequently, it is pointed out, there is less possibility of crystallization and fracture in the body and there is less tendency to set up strains in the body and head. The method of heading is said to knit the steel structure more closely together, increasing the tensile strength so that there is less danger of heads shearing or breaking.

In using the more common upsetting process in manufacturing cap screws in which the body is built up by upsetting, stock 0.340 in. in diameter with mill tolerances is used for a  $\frac{3}{8}$ -in. cap screw. Under the process described 0.370 in. stock is used, and this is reduced on the threaded end to 0.344 in. in diameter. The finished product is held, on a screw with 24 threads to the inch, within 0.3479 in. maximum and 0.3455 in. minimum pitch diameter, allowing a maximum tolerance of 0.0024 in., including lead and angle errors. This is an American standard screw thread, Class 3 fit, a classification that includes the better grades of interchangeable screw thread work for cap screws for automobiles. The manufacturer claims that because of holding the

blanks to very close limits it is possible to keep within the above tolerances more easily than when screws are made by the standard upsetting process. The cold-heading and drawing operations are performed on standard cold-heading machines, the plant being equipped with eight of these machines, supplied by the E. J. Manville Machine Co., Waterbury, Conn.

#### Trimmed Screws Pass Through Tumbling and Lubricating Machine

After the combined upsetting and drawing operation the secondary operations of trimming the head into its hexagonal form, sizing and burnishing, pointing, facing, shaving, threading and heat treating are performed in the order named. The common thread-rolling process is used in making the threads.

After trimming, the screws go through a combination tumbling and lubricating machine that has a series of three rotating barrels. The screws are shoveled into a loading skip with sawdust, which adheres to the oil on the work and aids in taking off the rough edges during tumbling. While one lot is going through the tumbling mill another lot is being dumped into the skip. The tumbling barrel is 24 in. in diameter by 30 in. long. Work is tumbled for 5 to 10 min. From the tumbling barrel the screws pass over a revolving screen, through which the sawdust is discharged, and from there to a second rotating section—a perforated metal barrel, 36 x 36 in. The barrel extends into a tank containing a hot wax preparation through which the screws pass. The barrel then dumps the screws into a small revolving barrel in which the surplus lubricant is drained off, and a spiral in the latter barrel discharges them into a handling receptacle.

The lubrication provides a film on the screws and takes the place of oil that would be required on the sizing dies if the screws themselves were not lubricated. All stock sizes pass through the tumbling and lubricating machine and then are sized in a die on a punch press to secure good fits on wrenches having close tolerances. The head is forced through the die, which burnishes it, at the same time bringing it to accurate size.

Some of the products made of alloy steel are annealed after heading and before the secondary opera-

tions to relieve strains. This is done on a rotary-type gas-fired annealing furnace.

#### Screws Heat Treated in Electric Furnace

The heat treating, which is the final operation, is done in a 90-kw. three-phase 60-cycle 230-volt rotary, tilting, tray-type, automatic discharge, hardening furnace having a capacity of 900 lb. per hour. While the furnace does not differ materially from other furnaces of this type, some of its construction features are new. Screws 5/16 in. to 1/2 in. in diameter are kept in the furnace 22 min., during which they make one rotation of the hearth. The time cycle is slightly increased for the larger sizes. The furnace can be set for a time range in the rotation of the hearth of from 14 to 50 min. The work is carried through the furnace in 12 cast nickel-chrome trays, each having a capacity of 25 lb. The screws are shoveled into the trays through the charging door, the trays usually carrying two layers of work weighing about 15 lb.

The furnace is divided into two zones, a heating and a soaking zone. A temperature of 1525 to 1550 deg. Fahr. is maintained in the soaking zone, and a slightly lower temperature in the heating zone. When a tray completes its circuit of the hearth, it is automatically dumped by a mechanism operated by a motor located on top of the furnace. The motor that operates the hearth is located at the back of the furnace. The automatic electric control of the two motors is interlocked so that the hearth makes one-twelfth of a complete circuit, bringing a trap to a discharge position, and stops. Then the tilting motor operates the lifting mechanism, causing the tray to tilt and discharge its load. The hearth motor cannot again operate until the tilting motor returns the lifting mechanism to its starting position and the timing mechanism has completed its cycle. The furnace has push button control and magnetic starters.

Each heating zone has a separate Leeds & Northrup temperature controller. The heating zone has a non-indicating controller and the soaking zone a recording controller. One thermocouple is located in the heating zone and a second in the soaking zone. The temperature control is very close, the range being within 7 1/2 deg. plus or minus of the temperature at which the control is set. By having accurate control over the rate of heating and the actual temperature readings there is a range of only 1/2 point plus or minus in the Brinell hardness of the product.

An important new construction feature of the furnace is that the roof can be removed to permit the

rebuilding of the hearth. When a replacement of the hearth is necessary the roof is raised as a unit by means of a hoist. In other types of rotating furnaces the rotating member is dropped into a pit beneath when the hearth is to be replaced. Access to the furnace for minor repairs is made through the charging door.

#### Screws Passed Through Quenching Machine into Rust-Proofing Solution

The screws are dumped from the furnace trays through a chute into a Greene quenching machine. This consists of a rectangular tank in which a motor-driven perforated drum revolves. One end is submerged in the quenching liquid, and the other projects over the end of the tank. The work slides down an inclined plate through the quenching medium into the drum, and the spiral in the drum causes it to circulate through the medium and, at the same time, elevates it out of the tank and discharges it into a rust-proofing solution. The screws are then ready for packing.

Two quenching machines are provided, one for quenching in water, which is used for carbon steel screws, and the other for oil, in which alloy screws are quenched. The oil quenching tank is connected with oil cooling equipment, the oil being circulated in coils through a drum in which water is kept in circulation. This has a capacity for cooling 100 gal. of oil per min. Cooling equipment was supplied by the Griscom-Russell Co., New York.

The furnace is made as airtight as possible, so that air and moisture are kept out and the work in passing through the chute to the quenching tank is exposed only a moment to the cooling action of the air. Consequently oxidation is held at a minimum.

To assure the accuracy in the product now demanded by the automotive industry the company has just completed a chemical and metallurgical laboratory, and its manufacturing processes will be closely tied up with laboratory work. A check will be made on all incoming shipments of steel to make sure that the material conforms to the specified analysis. Other checks will be made during the various stages of manufacture, and the finished product will be tested for tensile strength and hardness.

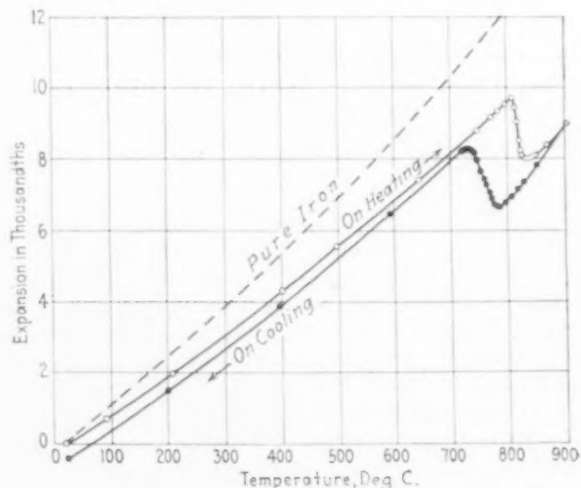
The products of the company include cold-headed cap screws made of carbon and of various grades of alloy steels in both S. A. E. and U. S. S. threads in sizes 1/4 to 1 in. in diameter and in maximum lengths up to 8 in. The plant equipment includes one of the first 1-in. heading machines built for cold upset work.

## Expansion of Stainless Iron

SCIENTIFIC PAPER No. 570 of the Bureau of Standards contains data on the thermal expansion of stainless iron secured by Peter Hidnert and W. T. Sweeney. Nine samples were investigated within the following ranges of composition:

Carbon .....	0.09 to 0.13 per cent
Chromium .....	12.0 to 16.4 per cent
Manganese .....	0.16 to 0.60 per cent
Silicon .....	0.25 to 0.57 per cent
Nickel .....	none to 0.33 per cent
Phosphorus .....	0.01 to 0.03 per cent
Sulphur .....	0.01 to 0.02 per cent

The sketch shows the relation between change in length and temperature for a C 0.09, Cr 12.2 steel, which is quite typical of the group. Transformations at about 800 deg. C. are quite marked. It will be observed that the coefficient of expansion increases slightly with increasing temperature (that is, the curve turns upward); furthermore, that the expansion is quite markedly lower than that for pure iron.



Linear Thermal Expansion of Stainless Steel on Heating and Cooling as Compared to That of Pure Iron



# Large Expansion in Electric Drive

Nearly 2,000,000 Hp. in 1510 Mill Motors—Units Purchased in 1927 Added 9 Per Cent to Horsepower Previously Employed

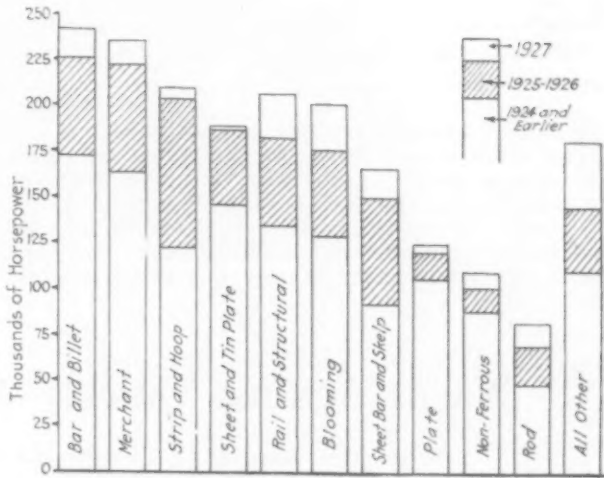
BY SIDNEY G. KOON

THREE years ago (Feb. 12, 1925), page 488, and June 25, 1925, page 1880) THE IRON AGE published details regarding the extent of installation of electric drives in rolling mills of the United States and Canada. This was based on a comprehensive tabular compilation made by the Association of Iron and Steel Electrical Engineers. Data covering 1927 and the entire list to the end of that year have now been made available.

Present installations, as analyzed by THE IRON AGE, aggregate 1510 units of a total of 1,949,800 hp. Of these, 116 motors of 170,350 hp. were added in 1927. The average size of the 1927 units was 1469 hp., while the average of all units is 1291 hp. No motors of under 300 hp. are covered in the tabulation.

### Types of Mills Showing Heaviest Use

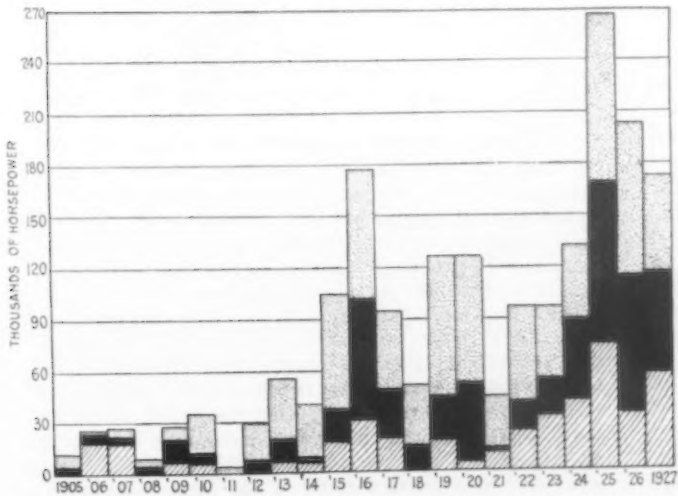
Bar and billet mills, with 242,175 hp. in 152 units, lead the list. Merchant mills make a close second, with 235,100 hp. in 277 units. Strip and hoop mills have 217,355 hp. in 150 units, while rail and structural mills with 73 units aggregate 205,800 hp., and 44 blooming mill units make a total of 200,500 hp. Other types of mills are powered as shown in Table I.



Total Horsepower of All the Mill Motors in the Principal Classes of Mills, Showing Separately the Additions of 1927 and of the Two Preceding Years Upon the Accumulated Totals of All Earlier Years

TABLE I—ELECTRIC DRIVE IN AMERICAN ROLLING MILLS

Type of Mill	Total Equipment—			1924 and Earlier			1925, 1926 and 1927			Added in 1925-27, Per Cent
	Motors	Hp.	Avg.	Motors	Hp.	Avg.	Motors	Hp.	Avg.	
Blooming	44	200,500	4,557	31	128,450	4,144	13	72,050	5,542	53.6
Bar and billet	152	242,175	1,593	114	172,135	1,510	38	70,040	1,843	40.7
Sheet bar and skelp	68	165,000	2,426	41	91,300	2,227	27	73,700	2,730	80.7
Rail and structural	73	205,800	2,819	46	134,550	2,925	27	71,250	2,639	53.0
Plate	53	125,150	2,361	47	105,900	2,253	6	19,250	3,208	18.2
Strip and hoop	150	217,355	1,449	95	122,170	1,286	55	95,185	1,731	77.9
Merchant	277	235,100	849	202	162,610	805	75	72,490	967	44.6
Sheet and tin plate	135	183,800	1,361	109	145,250	1,333	26	38,550	1,483	26.5
Rod	66	83,560	1,266	37	48,360	1,307	29	35,200	1,214	72.8
Piercing	35	50,600	1,446	20	15,850	793	15	34,750	2,317	219.2
Tube rolling	85	48,340	569	57	29,540	518	28	18,800	671	63.6
Wire	22	7,425	337	22	7,425	337	..	..	..	..
Wheel	17	12,900	759	13	10,000	769	4	2,900	725	29.0
Cold roll	108	49,845	462	68	28,475	419	40	21,370	534	75.1
Non-ferrous	210	110,100	524	173	88,350	517	37	21,750	588	24.6
Miscellaneous	15	12,150	810	9	6,800	756	6	5,350	892	78.7
Totals	1,510	1,949,800	1,291	1,084	1,297,165	1,197	426	652,635	1,532	50.3
Averages										



Growth in the Application of Electric Drive to Main Rolls Is Shown Clearly Above. The dotted portions of the yearly columns are motors of 300 to 1999 hp.; solid black, those of 2000 to 4999 hp.; shaded, those of 5000 hp. and over

Blooming mills made the largest gain in 1927, with 25,050 hp. in five units. Rail and structural mills, with five units, added 22,000 hp., while ten sheet bar and skelp mills accounted for 20,800 hp. Additions in 1927 were smaller than in the two preceding years, which saw 313 new motors aggregating 482,000 hp., or an average of over 240,000 hp. a year. Except for wire mills, however, all of the 16 types represented showed some addition during the year.

Something of the advance being made in production of seamless tubes is shown by the piercing mills. With 17,300 hp. added, they showed a gain of more than 50 per cent over the 33,300 hp. previously installed. The 1927 addition was almost equal to the 17,450 hp. of 1925, and was greater than the total in all years preceding 1925, which was but 15,850 hp. The average size of these mills increased from less than 800 hp., in units installed prior to 1925, to more than 1900 hp. in the 1925 additions and almost 2900 hp. in the 1927 additions.

While the total number of motors advanced in 1927 only 8 per cent, the total horsepower rat-

TABLE II—LARGE MOTORS OPERATING ROLLING MILLS

Type of Mill	5000 Hp. and Up		2000 to 4999 Hp.		Added in 1925-26-27	
	Motors	Hp.	Motors	Hp.	Hp.	Per Cent
Blooming .....	21	139,500	17	54,650	71,250	58.0
Bar and billet.....	15	90,500	21	60,900	46,550	44.4
Sheet bar and skelp	6	37,200	37	98,750	67,400	98.3
Rail and structural	14	86,000	29	81,000	54,500	48.4
Plate .....	7	40,500	22	64,650	15,850	17.8
Strip and hoop.....	3	15,500	30	72,150	50,700	137.2
Merchant .....	1	5,610	20	52,900	17,610	43.1
Sheet and tin plate	..	..	18	40,000	21,500	116.2
Rod .....	..	..	12	33,300	15,000	82.0
Piercing .....	1	5,000	10	29,000	31,500	1260.0
Wheel .....	..	..	1	2,000	..	..
Miscellaneous .....	..	..	2	4,000	4,000	..
Total .....	68	419,810	219	593,300	395,860	64.1
Average size.....	6,174		2,709		3,503	
Percentage of total	..		..		..	
list, now.....	4.5	21.5	14.5	30.4	..	
Three years ago..	3.9	19.6	11.7	27.1	..	

ing increased about 9 per cent and the average size of motor installed in 1927 was 15 per cent greater than the average previous installation. This gain shows up in particular in the largest size units.

In 1927 there were installed 23 motors of 3000 hp. and more to operate American rolling mills. This compares with 138 in service at the end of 1926 and repre-

TABLE III—RANGE OF SIZES OF MILL DRIVES

Size Group	Total		1924 and Earlier		1925, 1926 and 1927		Per Cent Added
	Motors	Hp.	Motors	Hp.	Motors	Hp.	
300 to 499 hp.	375	133,325	307	108,155	68	25,170	23.3
500 to 999	488	314,750	351	224,750	137	90,000	40.0
1000 to 1999	359	486,545	261	355,930	98	130,615	36.7
2000 to 2999	127	278,120	74	162,770	53	115,350	70.9
3000 to 4999	93	317,250	58	200,050	35	117,200	58.6
5000 and over	68	419,810	43	256,500	25	163,310	63.7
Total	1,510	1,949,800	1,094	1,308,155	416	641,645	49.0

sents an increase of over 16½ per cent in number. Of motors under 3000 hp., there were 93 added in 1927 to the 1256 previously in use, representing a gain of not quite 7½ per cent, or less than half the rate of gain of the heavier motors.

Horsepower added in 1925, 1926 and 1927, to the list of units of 2000 hp. and over, added 64.1 per cent to the aggregate power existing in those units at the end of 1924. Additions to the smaller units represented only 35.7 per cent of the earlier installed horsepower.

Diagrams and tables show the principal characteristics of the motors, both as a total driving force for American rolling mills and as regards distribution according to size, type of mill and other particulars.

## Warns Against Quickly Applied Chromium Plating

From Ten Minutes to Twenty Hours Required to Make Satisfactory Surface Depending Upon Expected Duty and Character of Underlying Metal

AT a meeting of the Chicago section of the American Society of Mechanical Engineers, held on March 14, Dr. J. Becker, chief research chemist Vacuum Can Co., read a paper on "The Relation of Chromium Plating to Industries and the Truth About Its Value and Application." After recounting the history of the metal and describing the rapid increase in interest in plating experiments during the past four years, the speaker emphasized that slight variations of the chemicals in the solutions or any other factor relating to deposition create distinct variations in the properties of the plate.

### Rule of Thumb Inadequate

"The man who can chromium plate a few steel golf heads will dispute this and in 15 min. explain all the factors which he thinks have produced the result, but ask him to plate golf heads that not only look pretty but will stand hard service, in a quantity run and at a reasonable cost, and then he must either deal with it as an exact science or grope in the dark. If the amateur should be asked to chromium plate golf heads of different shape or made of a different metal or to plate an entirely different article for a different kind of service he will find himself completely lost.

"Any intelligent, careful and systematic workman can successfully chromium plate particular types of articles to the highest standard of quality, but when and only when he is furnished complete detailed instructions.

"Decorative chromium plating may be adapted to all instances where beauty of appearance and easy cleaning is desired, but unless it is a real plate and not merely a superficial coloring it is of no value. In the first place the base metal determines the thickness of a chromium plate which should be applied. Naturally a decorative coat not subjected to wear need not be very heavy, provided, however, that such a plate is produced from a solution which will give a coherent and homogeneous plate. Otherwise such a plate is worse than none and will hasten instead of retard corrosion.

"When it is considered that good chromium solutions have no higher efficiency than 30 per cent, that there are many with an efficiency as low as 6 per cent, and further that the deposit of chromium from an excellent chromium solution is only about 0.00025 in. thick from 150 amp. current density per square foot in 1 hr. of plating time, you will realize how little metal

and how thin a plate you receive from the average plater, who considers 30 sec. to 1 min. plating time sufficient for chromium plating a radiator shell, a reflector or a plumbing fixture. Such a plate is less than 2 to 4 millionths of an inch thick and, though of nice appearance immediately after plating, will last but a very short time.

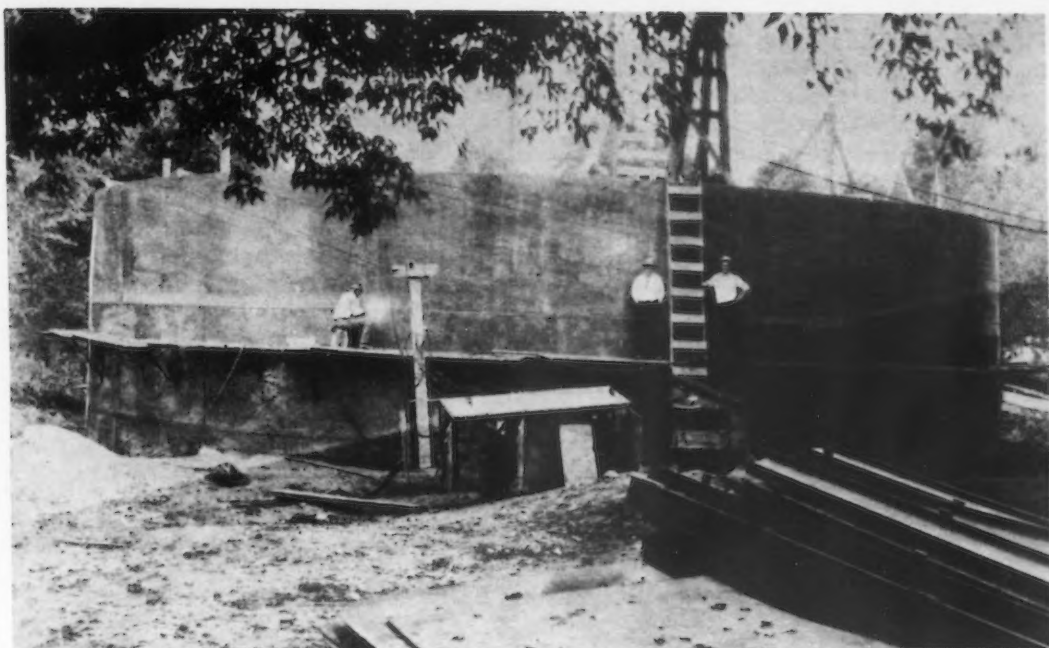
### Thickness of Decorative Coatings

"If copper, brass or zinc is to be given a decorative chromium plate, I consider it necessary that such pieces should be in the solution about 30 min., which will result in a plate of about 1½ ten-thousandths of an inch thick, provided a highly efficient chromium solution is used. If the base metal has a homogeneous adherent and continuous nickel plate or (as in the case of steel) copper or copper-and-nickel plate, a chromium plate in 5 to 10 min. will be sufficient as a decorative coat, resulting in a thickness of from 2 to 4 hundred-thousandths of an inch.

"Articles which have to withstand abrasion and corrosion, like plumbing fixtures and valves, should be treated entirely differently. If chromium is applied directly to brass or bronze fixtures, 1 hr. of plating time is recommended. If such fixtures are first nickel plated, 30 min. should be the minimum, resulting in a thickness of about 1½ ten-thousandths of an inch of chromium.

"The average nickel plating is not adapted as a base for chromium plating. It has been pointed out that chromium plating has a tendency to raise and make the nickel plating peel, but this occurs only when the nickel plating is not adherent. A great deal of nickel plating will stand buffing and give a good appearance, though it does not adhere to the base metal, and such a layer may withstand 30 to 60 sec. in a chromium solution, but will peel and blister if immersed longer than this period. This is the reason why only a flash-coat, taking less than a minute, is often given by platers.

"Where chromium is applied for wear, as in bearings, shafts, rollers, plungers, pistons or valves, special solutions are necessary which give the desired and demanded characteristic of the plate. The applications are more or less individual, and no specific rules can be given as to thickness, hardness and character of the plate. Especially if hardened steel is the base metal to be plated, a plating time of from 2 to 24 hr. is necessary."



*THE Water Tank With All Plates Erected. Welding generator near tank is covered with wooden shed to protect it from weather*

## All-Welded Gas Holder Takes 258 Tons of Plates and Shapes

Plates Are Erected with Narrow Overlap and Held with Bolts at Wide Spacing Until Welder Completes the Seam

BY F. H. BEEBE\*

A GAS holder of 300,000 cu. ft. capacity has just been completed at Albion, Mich. It is believed to be the largest all-welded low-pressure gas holder ever built and was designed and constructed by the Western Gas Construction Co., Fort Wayne, Ind. With all lifts elevated the holder stands 113 ft. 7 in. above the foundation; it has a diameter of 74 ft. and required 258 tons of plates and shapes plus 4 tons of welding rod.

A 15,000-cu. ft. single-lift gas holder, all arc-welded construction, was built by the same company for the Missouri Gas & Electric Co. at Lexington, Mo., in 1924. Experience with this rather small structure proved that welded joints were perfectly satisfactory in strength and are gas and water tight.

Electric welding for gas holder construction has inherent practical advantages. It reduces fabricating cost, because it is only necessary to lay out and punch a few holes for erection bolts. After the plates are erected in position with bolts, they may be tack-welded for additional stability, and then all lapping edges welded in a continuous seam. In the Albion job, cups and grips were fabricated in the shop, assembled in sections on the ground and welded in place.

The bottom was assembled flat on the concrete foundation and all seams were welded. The first course of 7/16-in. steel plates was then erected and welded, and water was allowed to stand in the foundation pit about 12 in. deep. In this manner the bottom and lower curb was tested for leaks, and it is interesting to know that none was found.

What is known in gas holder construction as the cup is easily attached by electric welding. It is a narrow trough attached to the inside shell about 2 ft. from the floor. Two dozen sets of I-beams were welded together and to the floor to form the landing blocks to receive the weight of the successive lifts when the holder is low.

One illustration shows the gas holder when the final welding was being done on the water tank. It can be

seen that the joints are lap joints, bolted at long intervals, a variety easy to erect and to weld. This picture also indicates the timber scaffolding erected inside the tank to carry the erection traveler, and the wooden cleats for holding the upper course at the required position until the joints were completed. Scaffold brackets for outside welding were bolted on, and the holes later welded shut. Such construction devices consisted of



*THE Largest All-Welded Gas Holder Is 113 Ft. Tall and Has a Diameter of 74 Ft. Seventy per cent of the welding necessary for complete fabrication was done in the field*

\*Vice-president Western Gas Construction Co., Fort Wayne, Ind.



virtually the same elements that would be necessary on a riveted job. All through this work it was the simplicity of welding that was its greatest virtue.

The other view shows the gas holder after completion of the final lift. The guide frame was entirely arc welded, the only bolts that were used being those employed in assembly. Around the top of the different lifts can be seen the goose necks. In the past these have been of riveted construction. On this job they were fabricated with metallic arc welding.

Plates forming the sides of the water tank range from 7/16 to 3/4 in. thick, and the three lifts are of No. 10 gage. Everything on this gas holder, the ladders,

the platforms and the crown, is assembled by welding.

On this gas holder 4 tons of electrode was used. If a holder of the same size were made of riveted construction, 7½ tons of rivets would be necessary. Four "stable-arc" welders manufactured by the Lincoln Electric Co., Cleveland, placed 21,414 ft. of seam. The entire job was carried through almost without a hitch and with much less difficulty than would naturally be expected with a new structural process.

This holder at Albion was built largely through the cooperation of D. F. Burritt, vice-president in charge of engineering Middle West Utilities Co., Chicago, and Roy Campbell, president Albion Gas Light Co.

## Forging and Heat Treating of Long Cylinders

Special Furnaces Used by Manufacturer of Printing Presses for  
Swaging Ends and Carbonizing Surfaces

BY J. B. NEALEY

**I**N addition to the more usual types of heat-treating furnaces, some special equipment has been installed at the Miehle Printing Press & Mfg. Co., Chicago. Many of the parts to be treated are long cylinders of various diameters. To case-harden rollers and shafts an interesting vertical furnace has been installed.

As shown in the view, it is 5 ft. in diameter and 7 ft. high, set in a pit. It is heated with 18 gas burners. Instead of packing the parts with carbonizers in pipes or boxes, they are lowered into vertical retorts (of which there are three) fixed within the combustion chamber. These retorts are charged with a small amount of carbonizing material, and gas is passed through them continually during the heating period. Parts that required 24 hr. to carbonize in coal-fired furnaces are treated in 8 hr. in this unit.

Another furnace which is a little unusual is a three-high furnace—that is, it has three chambers, one above the other. The upper chamber gets the first impact of

the gas flame, and the waste heat from it is passed down into the other two. The three chambers are maintained at 2400, 1700 and 1000 deg. Fahr. respectively and are used progressively for pre-heating and heating. This furnace is very compact—5½ ft. high and about 3 ft. square in cross-section.

Other unique furnaces are installed in the blacksmith shop. Two helve hammers are used for swaging ends on press rollers and for similar work on rounds up to 6 in. diameter. Each hammer has a battery of six cylindrical furnaces, set side by side under a ventilating hood. Each furnace is a steel casing about 18 in. long and 12 in. in diameter, lined with fire brick and heated with two gas burners so set as to produce a swirling flame within the brick lining. Air is supplied at from 4 to 5 lb. pressure, and the gas is inspirated. As shown in the view, one pipe or bar is a complete furnace charge.



(At Left) Withdrawing Shaft from Vertical Carbonizing Furnace. Swaging hammer (above) served by battery of small cylindrical furnaces

# Treated Fuels Feature Meeting

Powdered Coal and Dry Quenching of Coke Discussed  
by Combustion Engineers—Steel Mill  
Looks for Record

**M**ORE than 100 men, drawn largely from the combustion engineers' division of the Association of Iron and Steel Electrical Engineers, participated last Thursday in an inspection of the Edgar Thomson Steel Works of the Carnegie Steel Co., Braddock, Pa., and a technical meeting devoted to two topics in their particular line. One of these was the dry quenching of coke, while the other dealt with the use of pulverized coal as an industrial fuel.

Great efforts were being put forth in the steel mill to produce a record month. This, with 28 days of the month completed, was already assured. It was reported unofficially that the preceding day had witnessed the production of some 4800 tons of open-hearth ingots from sixteen 100-ton furnaces. The expectation for the month was about 100,000 tons, against a previous high record of about 90,000 tons. Rail production of the preceding 24 hr. was put at 95 tons an hour and sheet bar production at 70 tons an hour.

Among the new pieces of equipment shown in this plant are three turbo-blowers for the blast furnaces. These have replaced 10 old reciprocating engines, of which eight or nine were normally active and the other one or two spares. Each of the new blowers provides sufficient wind for one furnace. Two were made by the Ingersoll-Rand Co., New York, and one by the Brown-Boveri Co. of Switzerland. Each was designed for a normal load of 60,000 cu. ft. a minute. The maximum pressure under the design is 30 lb., and the normal pressure 18 lb. to the square inch. At 18 or 20 lb. the machines run at 2600 r.p.m., going up to 2975 r.p.m. for maximum pressure. The steam turbines, on the same shaft with the blowers, are rated at 7000 hp., taking steam at 225 lb. to the square inch, with 150 deg. superheat and 28½ in. of vacuum.

## Development of Andrew Carnegie's First Steel Plant

After luncheon in the company's club dining room the technical session was put under way without changing location. L. C. Edgar, chief engineer of the works, told something of the history of the development of the plant, from the first Bessemer blow of Aug. 26, 1875, and the first rail rolled, Sept. 1, 1875, through the first open-hearth heat, Aug. 16, 1913, and up to the present, when the high records above mentioned are being made.

This plant was started by Mr. Carnegie and associates as his first venture in steel making. It had capital stock originally of \$700,000, and a daily capacity of 225 tons of rails. Rails had been \$175 a ton shortly before this plant was put into operation, these being wrought iron rails. The price dropped from \$120 a ton in 1873 to \$42 in 1878, causing a great deal of trouble in meeting expenses by the new Bessemer method of manufacture. The first blast furnace, erected in 1880, had a daily capacity of 56 tons. The furnaces were gradually increased in size until in 1890 one made the best record of that time, of 457 tons in 24 hr. About this time the mill was rolling a maximum of 277,000 tons of rails in a year.

In 1905 a second rail mill was added, this being the first mill in America to utilize electric drive. The capacity of the original rail mill had been increased from 1120 tons rolled from ingots in September, 1875 (its first month of operation), and 30,632 tons in the 12 months of 1876, to 213,000 tons in the 12 months of 1906. That mill was then changed over to roll sheet bars, as the other rail mill had been installed. It made a high record in sheet bar production of 250,929 tons shortly after the conversion. In March, 1927—just a year ago—that mill turned out 24,320 tons. This figure

is likely to be bettered in the current month, although the mill is 52½ years old.

## Dry Quenching of Coke

**Q**UENCHING of coke without dousing it in water was the subject of a paper by Col. H. B. Savage, which, in his absence, was read by Walter Sennhauser, engineer of Sulzer Brothers, Winterthur, Switzerland. The paper dealt with the system whereby successive charges of incandescent coke are passed through a large container, which holds from six to a dozen or more such charges for a period of 3½ to 4 hr. Inert gas drawn from the coke by the action of a fan, at a temperature of about 1800 deg. Fahr., is operated in a closed circuit through tubes of boiler units, whereby steam is raised. Heat is taken from this gas to such an extent that it is relatively cool as it enters the bottom of the coke container and passes up through the mass again. After each coke charge is entered at the top of the container an equivalent amount is withdrawn from the bottom, at a low enough temperature to satisfy requirements.

A complete description of a plant operating on this principle was published in *THE IRON AGE* of Feb. 10, 1927, page 425. This description covered the plant at Rochester, N. Y., which is the only one of this type in the United States. The speaker showed a large number of slides of similar plants in various sections of Continental Europe, some of which are considerably larger than the Rochester installation, while others are much smaller.

In the paper as read it was estimated that the loss of coke in water quenching, through carrying away fine particles and from other sources, amounted in the United States to about 2,250,000 tons a year, which was figured at 5 per cent of the production. This coke is largely saved in the dry quenching process. In some cases there is no measurable change in the production of coke braize. Other cases, however, have shown a reduction in braize from as much as 14 per cent down to 8 per cent—a gain of 6 per cent.

## Steam Makes the Plant Pay

Production of steam is the paying part of this proposition. The various units have been figured at 400 to 450 lb. of steam for each 1000 lb. of coke put through the apparatus. At Rochester the average for six months on this basis was 420 lb. of steam, equivalent to 840 lb. for each net ton of coke. It is figured that this return is sufficient to amortize the investment in about four years. After that the gain is largely clear profit. One speaker in the discussion reported that the Rochester plant had proved capable of handling about 520 tons of coke a day, in place of 420 tons nominal figure. This meant a return, on the money invested, about 20 per cent higher than the original calculation.

While the first experimental plant on this basis was installed in Switzerland in 1918, it was not until 1922 that the first commercial plant was put in. The largest present plant has a capacity for handling 1000 tons of coke a day. This consists of four units (that at Rochester has two), each with a capacity of about 333 tons, one unit being a standby. Power consumption was placed at about 3 kw. for each ton of coke, this including power for both the fan and the hoist. A plant now under design will have a capacity of 1500 tons, and Mr. Sennhauser spoke of 2000 tons as being a near possibility. It was brought out that there is no dry quenching of coke in any of the German steel works or blast furnace plants. Hence, there was no opportunity



to observe the action of dry-quenched coke in making pig iron.

### *Powdered Coal for Industrial Furnaces*

CLEAN gas was called the best possible form of fuel, because of its molecular condition, by Prof. William B. Shoudy of Columbia University in his paper entitled "Powdered Coal Applications to Industrial Furnaces." Clean oil was listed as next in order of merit, because of the ease with which this can be broken up into a condition approaching the molecular. Coal is not so easy to handle from this point of view. Combustion takes place on the surface of each chunk or particle. The heat gradually breaks up the coal, exposing a larger amount of surface for each pound of fuel. Air gets through the interstices and wipes off from the surface the CO or CO<sub>2</sub> produced, changing the former to the latter, and combustion proceeds.

Pulverized coal particles, while they do not approach very closely to molecular dimensions, are yet such a long step in that direction that they overcome largely the disabilities of coal as ordinarily fed into furnaces. This coal is usually so pulverized that about 85 per cent of it will pass through a 200-mesh screen. A comparison was made with a molecule, whereby the speaker visualized this 200-mesh particle as being enlarged to the size of the dirigible Los Angeles, compared with which a molecule would be 0.08 in. in diameter. Incidentally, another comparison made later by another speaker considered particles of coal with a diameter of 0.002 in. If these were to be expanded 1,000,000 diameters, we would have a sphere or balloon shape nearly 200 ft. in diameter. Compared with this a molecule would be about the size of a poppy seed.

With powdered coal blown into a furnace the air has to move faster than the coal, if it is to wipe off the CO and CO<sub>2</sub> particles from its surface. Otherwise, if the air and coal moved together, the combustion chamber would have to be very large and the flame would be long. It has been found that a turbulent motion gives a good mixture and shortens the flame requirements. This is commercially important, because it makes available furnaces much smaller than would otherwise be required. Greater fineness in the coal has somewhat the same effect.

### *Ash Deposits May Be Harmful*

Another reason for great fineness in the coal lies in the ash element. Ash from coal used in industrial furnaces, if it lands on the product, may affect the quality of the surface of that product. As yet we do not know completely what this effect is, but we do know that it is likely to be deleterious. Hence, with the finest possible coal the ash particles are so fine that they are carried on by the gases from the furnace to the stack, with much less likelihood of landing on the product. Professor Shoudy believes that coal pulverized so that 85 per cent will pass a 200-mesh screen is sufficiently fine for most industrial processes. For boiler use the coal can be much coarser.

Several photomicrographs were thrown on the screen, showing the results of pulverization by different types of pulverizing equipment. In each of these highly magnified views particles were pointed out which were about the measure that would readily pass through the 200-mesh screen. It was notable that each sample showed a number of particles much too large for that screen, but the great majority of particles were so small that it was difficult to see them. Some of them undoubtedly were less than 0.001 in. in diameter and a goodly proportion must have been less than 0.002 in.

### *Central vs. Unit Systems*

Taking up the question of central supply of pulverized fuel vs. unit supply, the speaker pointed out that sometimes a unit installation may be shut down through some trouble in the pulverizer, with considerable loss to the industrial process under way. He advocated, where such loss might be experienced, a sort of compromise between the two systems. His proposal was to introduce between the pulverizer of the unit system and the burner an auxiliary bunker sufficient to carry a supply which would last the burner 2 or 3 hr. This would permit adjustment or repair of the pulverizing

element, should this become necessary, without necessitating shutting down the whole equipment.

Inherent moisture in the fuel does not ordinarily cause trouble. Surface moisture does. It is for this reason that drying is usually resorted to before the coal goes into the pulverizer. Sometimes the pulverized coal itself is passed through a drier operated with a steam jacket as its heating element. There are, of course, industrial plants which dispense altogether with driers. One of these in which an air furnace figures is that of the Eastern Malleable Iron Co. at Naugatuck, Conn., described in *THE IRON AGE* of March 1, page 600.

Discussion of this paper by Henry Kreisinger took the form of running comment on a large part of the material which Professor Shoudy had furnished. The expansion of the fine coal particle by 1,000,000 diameters was Mr. Kreisinger's illustration. In this particular case he pointed out that, if this enlarged particle of 200 ft. in diameter were to receive 100 per cent of the air necessary for its complete combustion, this air surrounding the particle would, at the temperature of combustion, have a diameter of two miles. Particles of air on the circumference of this two-mile sphere would have a long travel before they could pick up particles of carbon on the incandescent surface of the burning coal. This example was given principally to show the relationship between the fuel and the oxygen supply from the air.

The speaker pointed out that it is possible to go as high as 3 lb. of coal to the hour for each cubic foot of combustion space, if the walls of the furnace are water-cooled. This figure takes the place of 2 lb. in the ordinary furnace without water cooling. Hence, the supply of heat with water-cooled walls may reach around 35,000 B.t.u. an hour for each cubic foot of combustion space.

### *How the Section Came Into Being*

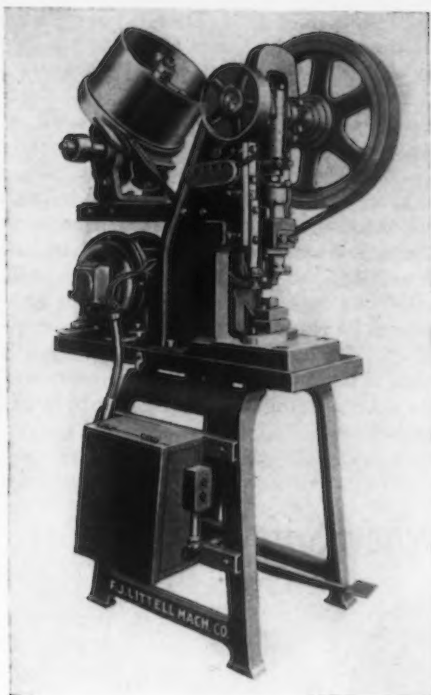
Preceding the presentation of the papers, A. J. Standing, president of the Association of Iron and Steel Electrical Engineers, extolled the work which the combustion section has done since its inception. In particular, he told about how the group of combustion engineers, without any parent society, had begun to do a certain amount of work. The directors of the Association of Iron and Steel Electrical Engineers, observing the work under way, decided that it would be a good thing to bring the two groups together, inasmuch as the combustion engineers naturally would sooner or later become affiliated with some one of the national societies. This approach was made first in 1922, and from a small beginning the division has already presented more than 75 major papers along its specialized line.

### *Fellowships Offered by Carnegie Institute of Technology*

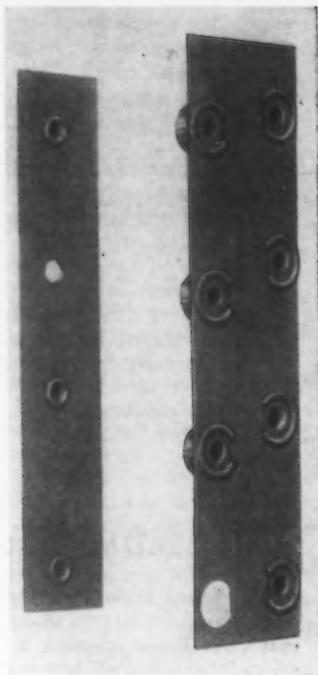
Several fellowships are open, as of Aug. 13, 1928, at the Carnegie Institute of Technology, Pittsburgh, for investigations in the physical chemistry of steel making. As noted in *THE IRON AGE* for Oct. 27, 1927, page 1171, provision has been made for a five-year program of intensive study through the cooperative action of the institute, the United States Bureau of Mines and several leading steel makers.

Fellowships are open to the graduates of colleges, universities and technical schools who are properly qualified to undertake research investigations. Each fellowship carries a stipend of \$750, paid in 10 monthly instalments. Fellowship holders are required to register as graduate students and become candidates for the degree of Master of Science unless an equivalent degree has previously been earned. Fellows will not be required to pay registration fees. Application blanks will be furnished by Prof. Edward Steidle. Each applicant will be required to supply a copy of his collegiate record from the registrar's office of his college. He will also submit a photograph and names and addresses of at least three persons who are familiar with his character, training and ability, together with a statement of his technical or practical experience. Applications are due not later than May 1, 1928.





*THE Feed Used for Fastening Round Nuts to Grooved or Curved Body Parts Is on Press at Left. The feed above is for handling D-shaped clinch nuts, samples of which, together with the round nuts, are shown at right*



## Special Punch Press Feeds for Clinch Nuts

**P**UNCH press feeds for use in connection with the fastening of clinch nuts in automobile body parts have been developed by the F. J. Littell Machine Co., 4125 Ravenswood Avenue, Chicago. Five types are available and, although developed primarily for use on automobile bodies, the machines are offered for other work involving similar problems. Increased production is claimed, as well as adaptability for fastening nuts in inaccessible places.

The feeds are designed to take flat-sided as well as round nuts, which may be fed either from the top or the bottom. One type, designated as the model A, feeds the nuts from the bottom, and lifts the body piece out by means of an automatic lifter. The lifter has a disappearing action, so that another piece may be fed to the button immediately. This model feed is for round clinch nuts. The model B, illustrated herewith, is made in two styles, for long and short strokes respectively. This feed is particularly useful for fastening round nuts to body parts that are deeply grooved or curved

in such a way that access is difficult. The round nuts fed by this model are fastened into hexagonal holes, and are curled over the hexagon sides of the hole to prevent the nuts from turning.

Model C feed is similar to the model A but has an automatic lifter which ejects the piece to the front instead of raising it straight up. This style feed is also arranged with a thin anvil so that nuts may be inserted inside of U-shaped body parts. The fifth model of feed is especially designed for feeding D-shaped or flat-sided nuts to the body parts. This type of feed can be supplied to feed the nuts either from the top or the bottom, the model illustrated herewith being arranged to feed the nuts from the bottom.

All of the feeds are arranged so that the operator merely has to put the body piece over the clinch nut and trip the press. A new nut is then automatically pushed into place. It is claimed that an operator can set 25 to 40 or more of the nuts per minute.

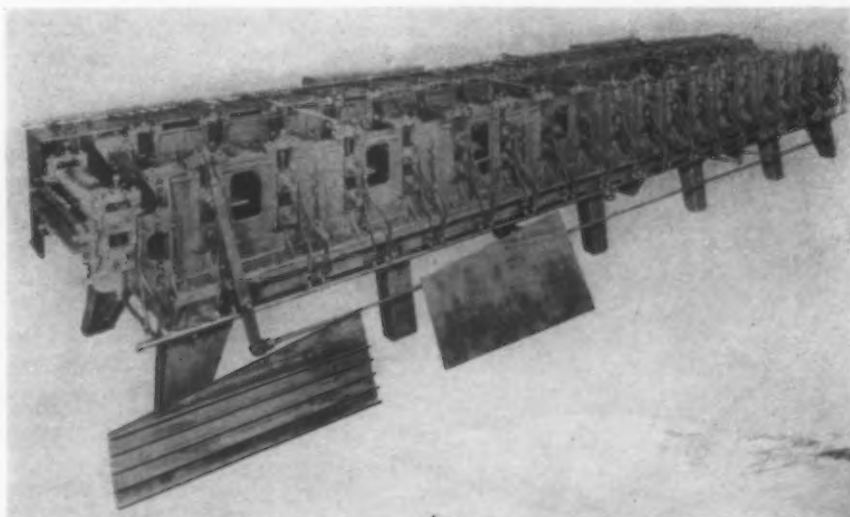
## Automatic Machine to Form Automobile Running Boards

**D**EMANDS of the automotive industry for rapid and economical production of parts has led to the development of many one-operation machines which perform the work that formerly required several operations. A recent addition to this list of special produc-

tion machines, designed to speed up output and reduce labor costs, is a rolling machine for forming automobile running boards. It has been brought out by the Yoder Co., Cleveland.

With this machine, running boards having parallel

*STOCK of Sheet Steel or Cold Rolled Strip, as Shown at Right, Is Made in This Machine into Automobile Running Boards, One of Which Appears at Left of the Sample of Stock. Operation is automatic, including rolling ribs and hemming one edge*



edges are completely formed in one pass through the machine, the operations including making the ribs and hemming the edges. Boards tapered on one side go from this machine to a smaller, standard open-side rolling machine on which the tapered edge is hemmed. The board is then ready for the necessary machine work and for parts for attaching it to a car.

The machine has a series of rolls or dies which successively form the ribs and hem the parallel edge or edges. Each machine is built to meet the special requirements of the purchaser. It is made with from 14 to 18 sets of rolls and for forming running boards from stock ranging from No. 16 to No. 22 gage. The machine illustrated has 18 sets of rolls and is built for making running boards from No. 20-gage steel.

Stock, either of sheet steel or of cold-rolled strip, is cut to the required length, 4½ to 5 ft. It is fed into guides at the feed end, at the right in the picture, and

passes first through flat feed rolls. Then it goes through rolls that form the ribs, which are about ¾ in. deep, and finally through the rolls that hem both sides of boards having parallel sides and one side of boards having one tapered side. The machine illustrated was built for rolling two, three or four ribs and hemming one edge.

If there are three ribs, the center rib is made in the first rib-forming rolls, then the two outside ribs in the next rolls and the hemming is done on the last rolls. If there are four ribs, the two inside ribs are rolled first and then the two outer ribs. The machine has a capacity of forming 20 running boards a minute or approximately 100 ft. of stock a minute. It is driven by two 15-hp. motors mounted at the back, each operating nine sets of rolls. All bearings are lubricated by a one-shot lubricating system.

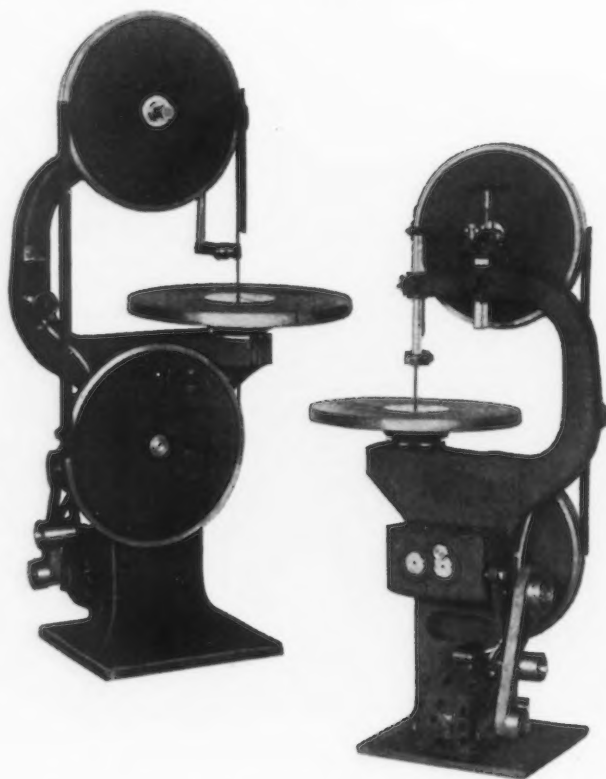
## Band Saw for Cutting Brass and Other Soft Metals

**F**OR brass foundries, metal pattern and other shops having soft metals to cut, William Laidlaw, Inc., Belmont, N. Y., is offering a metal cutting band saw improved features of which include the mounting of the ½-hp. 1750-r.p.m. driving motor on the side of the frame directly under the gear box. Control of the motor is from a switch on the side of the column. The machine is compact, the floor space occupied being 25 by 36 in.

From the motor the drive is by endless belt which runs over a ball-bearing idler. A two-step cone pulley is mounted on the motor shaft and also on the worm shaft, and these pulleys are interchangeable. Eight speed changes are obtainable, two of which are secured through the gear box without shifting the belt or interchanging the pulleys. Changes through the gear box are made by sliding gears and lever.

Ball-bearings are used throughout. The lower bearings are lubricated from the gear box and the upper wheel bearings have a large grease chamber which requires attention only at long intervals. The worm wheel is of bronze and the worm, hardened and ground, runs in oil. Transmission gears also run in oil.

Band wheels are of web construction and are 20 in. in diameter. They are flanged on the front side to protect the operator in case the saw breaks. With this construction wheel guards are not necessary. Upper and lower guides are interchangeable; either guide can be used for two widths of saws simply by loosening one screw and turning the guide half over. The machine will take any width of saw blade up to and including 1 in. in width. Guide plates are made for ½ in. and ¾ in. saws, but guide plates for other widths of saw can be furnished.



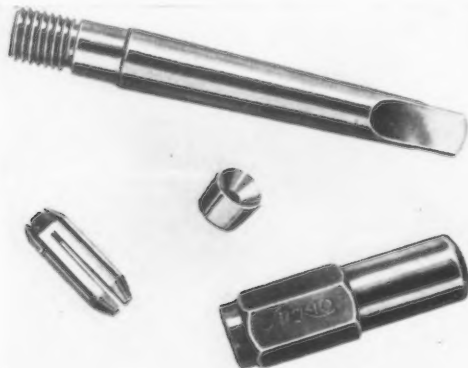
*Compactness Is a Feature. The drive is by motor and ball bearings are used throughout*

## Chuck Designed to Hold Broken and Double Twist Drills

**D**RILL chuck and double-end twist drills bearing the trade name of Stick-To are being marketed by the Specialty Trading Corporation, 551 Fifth Avenue, New York. The chuck is designed to prevent breakage of twist drills and to permit use of broken drills. It is

said to grip the tool without marring or dulling the cutting edge and will also grip the round shank.

Construction of the chuck may be noted from the illustration. There are two main parts, a hollow arbor and an outer sleeve, which when screwed together hold the twist drill firmly. This is accomplished with the aid of internal taper surfaces and a jam sleeve that is slit and beveled at both ends. One of the beveled ends is jammed against the tapered surface in the outer sleeve, while the other end is pressed together by a loose interior collar, which is tapered and beveled on the inside at one end. The twist drill in the chuck is held at two places, providing eight contact points, which is



*Double Drills May Be Used in the Chuck, the Parts of Which Are Shown at Left*

said to prevent slippage of drills and provide proper alignment.

Projection of the twist drill outside of the chuck may be regulated to the depth of the hole or to the most effective free length desired. The chucks are recommended for use with the quick-change collet system, and adaptability for multiple-spindle work, both drilling and tapping, is attributed to the small diameter of the chuck, which permits working to close centers. Each chuck has capacity to take five sizes of drills, by

sixty-fourths of an inch. Simplicity of construction is emphasized as minimizing repair and maintenance expense.

Double-twist drills, one of which is illustrated, are offered for use in these chucks. A feature of these tools is that when one end becomes dull the drill may be inverted in the chuck and the other end used. The full length of the drill may be consumed and there is no shank to be discarded. Both high-carbon and high speed double-end drills of Swedish steel are available.

## Combination Punch, Slitting Shear and Bar Cutter

**T**WO combination punches, slitting shears and bar cutters have been added to the all-steel universal iron worker line of the Buffalo Forge Co., Buffalo, N. Y. These machines, designated as the Nos. 2½ and 3½, are intended for use where a machine of greater capacity than the company's smaller iron workers is required, but not the high punch throat of the Buffalo

25 to 29 U D punch, slitting shear and bar cutters. The lower throat permits compact design.

One eccentric operates all three tools in succession, all three tools being actuated during one revolution of the eccentric but not at the same instant. This prevents overloading the machine and permits using the three separately controlled parts of the machine at the same time.

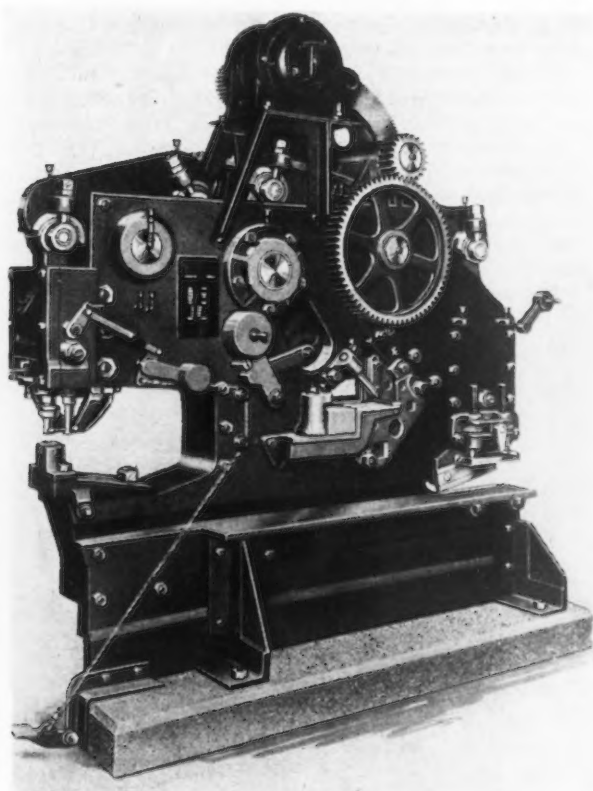
Interchangeable high and low die blocks on the punch end permit the handling of beams, channels, girders, Bethlehem beams and H-sections. The stripper swings out of the way when changing tools. Shear blades are unusually long and are reversible. The bar cutter is the same as on other U D machines. Angles can be cut on a miter without inclining the stock. A triple punching attachment is available.

The No. 2½ machine is designed for punching holes up to 1 3/16 in. in ¾-in. plate or 1-in. holes in 7/8-in. plate. The larger machine, the No. 3½, has capacity for punching 1¼-in. holes in 7/8-in. plate or 1 1/16-in. holes in 1 1/16-in. material. Angles up to 3 x ¾ in. can be notched, and I-beams up to 5 to 9 in. and channels 5 to 8 in. can be coped by the smaller machine. The depth of throat of the punch unit of both machines is 20 in.

Shearing of ¾-in. plates through the center and trimming of 7/8-in. material may be done on the No. 2½ machine. Flats up to 6 x ¾ in. can be cut with standard knives, and flats from 3 x 7/8 in. to 10¼ x ½ in. with a special upper knife. The knives of both machines are 12 in. long.

The bar cutter of the smaller machine will handle 2¼-in. rounds; 2-in. squares; 6 x ½-in. 90-deg. angles; 4 x ½-in. 45-deg. angles; 4 x 5 x 9/16-in. 90-deg. tees; as well as 9-in. 21.8-lb. I-beams and channels; 10-in. 20-lb. channels; 6-in. 22.8-lb. H-sections; and 9-in. 20.5-lb. Bethlehem beams.

A 10-hp. motor is employed to drive the smaller machine and a 15-hp. motor for the No. 3½ machine. The No. 2½ machine is 7 ft. 4 in. long, 4 ft. wide and 6 ft. 10 in. high, the same measurements of the larger machine being 8 ft., 4 ft. 3 in. and 8 ft. 8 in. The weights are 8250 lb. and 9600 lb. respectively.



One Eccentric Operates the Three Tools Successively During One Revolution

## Deterioration of Lead Cable Sheathing

S. Beckinsale, Callender's Cable & Construction Co., London, and H. Waterhouse, metallurgist research department, Woolwich Arsenal, reported to the recent meeting of the British Institute of Metals the results of an examination of large numbers of cables with cracked lead sheaths. The cracks were found to be intercrystalline, had commenced on the inside of the sheaths and were generally free from corrosion. The lead in the region of the cracks was not distorted. Definite evidence was obtained that where lead sheathing failed by cracking the cable was in a state of vibration. Alternating stress tests indicate that lead has a very low fatigue limit, and the fractures obtained in the pure lead test pieces were similar in all respects to those found in failed cable sheathing. The conclusion was therefore reached that the cracking is a fatigue type of failure.

Other explanations have been advanced to account for the cracking. Of these only two, corrosion and pro-

longed stress, might cause intercrystalline cracking in lead, but cracks produced by the former are associated with much corrosion product, and by the latter with much deformation of the lead.

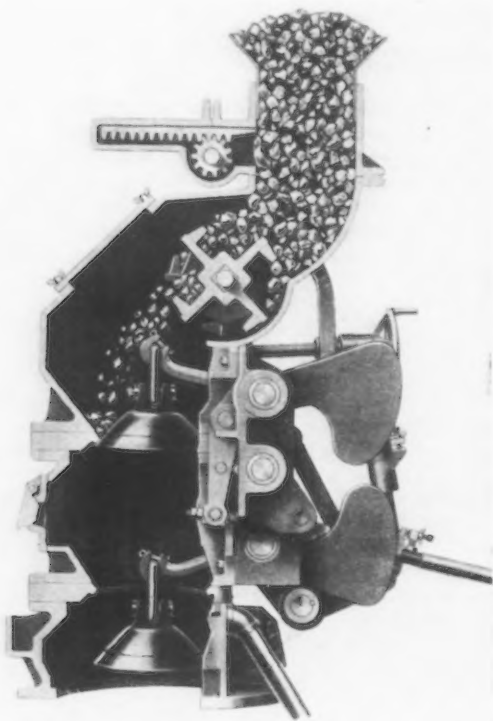
In America, the work of J. R. Townsend, R. S. Dean and their collaborators in the Bell Telephone and Western Electric Laboratories have developed the fact that pure lead hardened with a little antimony gives much better resistance to cracking after repeated bending. The British authors favor the lead-cadmium alloys, with or without tin or antimony. Comparative fatigue limits, in pounds per square inch after annealing 1 hr. at 250 deg. C., are as follows:

Metal	Analysis	Fatigue Limit
Pb .....	99.99	450
Pb:Sn .....	97:3	1,070
Pb:Sb .....	99:1	1,390
Pb:Cd .....	99.7:0.3	940
Pb:Cd .....	99.5:0.5	1,320
Pb:Cd:Sn .....	98.25:0.25:1.5	1,140
Pb:Cd:Sb .....	99.25:0.25:0.5	1,590



## Mechanical Gas Producer Fed by New Device

A new type of fuel feed for mechanical gas producers has been brought out by the Wellman-Seaver-Morgan Co., Cleveland. This is a double-bell type of feed that operates on an entirely different principle from the commonly used revolving pocketed vane-wheel type of feed. Two bells, which automatically lower and rise alternately, pass the fuel into the producer. Their action is so timed that one bell is open when the other



*Double Bell Type of Feed in New Producer*

is closed. Their operation requires but a fraction of a horsepower, which is supplied by the producer motor. The rate of feeding is regulated by a rotating fingered vane-wheel, located above the upper bell, through a control traveling nut, screw and hand wheel. At the top of the feed there is a shut-off valve which, when closed, stops the flow of fuel from the overhead bin when the working parts beneath require removal and replacement.

The bells and seats are of alloy steel, machined to secure the closure of a spherical surface against the circular seat. This, it is stated, insures a gas tightness even when the parts are worn from long use.

Any granular fuel may be used, such as bituminous or anthracite coal, coke or lignite, in any size from slack up to 3-in. lumps. The use of this feed, it is pointed out, assures an even distribution of the fuel in a sprinkled layer on the fuel bed. The volatile constituents are quickly gasified, and an incandescent bed of coke is maintained for the reception of a fresh charge of fuel. The feed is made in two sizes, one with a capacity up to 5000 lb. and the other with a capacity up to 10,000 lb. per hour. Only one feeding device is required for a producer. The new double-bell fuel feed has been adopted as standard equipment on the W-S-M Type L producer. It is also interchangeable with previous types of mechanical feeds supplied with the Hughes type of producers.

## By-Product Coke at Higher Rate

Output of by-product coke during the 29 days of February amounted to 3,708,000 net tons, a decrease of 172,000 tons, or 4.4 per cent, compared with January, according to the Bureau of Mines, Washington. The daily rate, however, increased from 125,161 tons in January to 127,862 tons in February, a gain of 2.2 per cent. There were 78 active plants and one was idle, production being at the rate of 82 per cent of capacity.

## Exhibits Open Side Planer for Tool Room Use

A specially designed open side planer for tool room operations, built by the Cleveland Planer Co., Cleveland, was on exhibition at the company's plant April 3. In response to invitations by the company, the machine was inspected by a number of machine tool users and others. This is a 30-in. x 30-in. x 8-ft. unit built for the Brown-Lipe-Chapin Co., Syracuse, N. Y. Features include rapid power traverse, dial feed, forced feed lubrication to the vees, parallel belted motor drive, two rail heads and one side head.

## Wholly Inclosed Arc Welder

A new 200-amp. single-operator welding set, for both shop and field, has been designed by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Simplicity of operation and compactness in construction are the features of the new unit.

The set is connected directly across an alternating current line. Starting, by means of a linestarter and linestart motor, is accomplished by a push button. A single rheostat varies the arc current in steps of 5 amp. over the entire welding range from 60 to 300 amp.

Motor, constant-current generator and control equipment are assembled in a completely inclosed frame. The separator exciter, which is overhung from the motor end, is securely fastened to the unit frame. This type of construction guards the operator against injury, and protects the set from dirt and falling objects. In performance tests, entirely satisfactory welding operations have been carried on while the sets were suspended at all angles and positions.

The unit is rated at 200 amp., 1 hr., 50 deg. rise on



a resistance load at 25 volts, which conforms to the standard rating of the National Electrical Manufacturers Association. The motor is wound for single-phase, 220 or 440-volt, alternating current. If it is desired to operate the unit from a 440-volt, three-phase 60-cycle circuit, it is only necessary to replace the operating coil on the magnetic starter and to reconnect the motor leads.

The Chicago Association of Commerce has started a movement for the immediate establishment of a Government barge line on the Illinois River in case the Deneen-Denison bill increasing the capital stock of the Inland Waterways Corporation is passed at this session of Congress. The purpose of this move is primarily to make it possible to extend Government service to those parts of the Illinois River where navigable channels are maintained. The bill in question provides \$10,000,000 for use by the corporation in the purchase of new equipment for expanding the barge service.

# Foreign Markets Less Active

United Steel Works to Reduce Output 40,000 Tons a Month—  
Welsh Tin Plate Business Good—British Pig Iron Quiet

(By Cable)

LONDON, ENGLAND, April 2.

**P**IG iron is quiet, but Cleveland prices are firm and makers are well sold ahead, with output going directly into consumption and stocks of both foundry and forge iron depleted. Scotland has purchased fair tonnages through the Cleveland producers' agency, at less than the official quotations.

Foreign iron is being offered, but users are not attracted by present quotations. Hematite is still rather quiet, but inquiry is improving and makers hope to reduce their heavy supplies. Foreign ore continues quiet, as consumers are well covered. Prices of the foreign product, however, are stiffening as a result of the Swedish situation.

Finished iron and steel is quiet, makers being in need of orders, but being unwilling to reduce prices. Export demand for plates and shapes is especially poor.

Tin plate bars are active and non-members of the association are increasing prices. Baldwin's, Ltd., is

operating in three Landore steel furnaces after 12 months of idleness.

Tin plate is active, with foreign and domestic consumers buying well and works in a satisfactory position. Makers are to meet April 17, when it is expected that the minimum price will be advanced. Meanwhile no mills are quoting less than 18s. (\$4.39) per base box, f.o.b. works port.

Galvanized sheets are quiet in the Indian market, but South America, South Africa and Australia have purchased moderately. Black sheets continue inactive.

Continental iron and steel is quiet and prices are generally weakening, while consumers are awaiting some evidence of stability at lower levels. Some works are holding out for the full market price, but others are offering concessions for new business. The European Rail Makers' Association has reaffirmed the rail price at £6 7s. 6d. (\$31.05) per ton, f.o.b. Antwerp, for second quarter shipment.

## GERMAN EXPORT QUOTA HIGHER

International Cartel Gives Additional 50,000 Tons—No Action on Selling Syndicate

**B**ERLIN, GERMANY, March 15.—Improved business and firmer prices in Continental markets evidently accounted for lack of action at the recent meeting of the International Steel Cartel in Paris. At the preceding meeting of the cartel there were evidences of dissatisfaction with the price situation, and member countries showed interest in the establishment of selling syndicates as a means of insuring more profitable prices. The recent death of M. Mayerisch, president of the cartel, was also a reason for inactivity at the recent meeting.

Early this year the French mills established a national selling syndicate for semi-finished material and beams, thus eliminating one of the obstacles to the for-

mation of international syndicates. Similar action, however, is still to be taken by Belgium.

The expected increase of steel quotas for the second quarter of the year was not made. Such an increase would have reduced the penalties payable to the cartel for overproduction, but the countries which habitually produce more than their quotas preferred to continue paying the penalties rather than to risk a general price decline from an increase of Continental production. Germany, therefore, will continue to pay a fine of \$1 a metric ton upon surplus output sold in the domestic market and \$4 a ton on excess production exported. The German export quota, however, has been increased 50,000 tons a month on the declaration of the German delegates that export business cannot be longer neglected. In January, the German export surplus was only 101,000 metric tons, compared with an average monthly export surplus in 1926 of 340,000 tons. The willingness of other cartel members to agree to this increase in exports was evidently based on the belief

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.87 per £ as follows:

Durham coke, del'd.	£0 18s.		\$4.39	
Bilbao Rubio ore*	1 2½		5.48	
Cleveland No. 1 fdy.	3 8½		16.56	
Cleveland No. 3 fdy.	3 6		16.07	
Cleveland No. 4 fdy.	3 5		15.83	
Cleveland No. 4 forge	3 4½		15.71	
Cleveland basic (nom.)	3 15	to 3 15½	18.27	to 18.39
East Coast mixed...	3 10		17.05	
East Coast hematite	3 10½		17.17	
Rails, 60 lb. and up.	7 15	to 8 0	37.75	to 38.96
Billets	6 0	to 6 10	29.22	to 31.66
Ferromanganese	13 10		65.75	
Ferromanganese (export)	13 0	to 13 5	63.31	to 64.53
Sheet and tin plate bars, Welsh	5 7½	to 5 15	26.18	to 28.01
Tin plate, base box.	0 18	to 0 18¼	4.39	to 4.45
Black sheets, Japanese specifications.	13 5	to 13 10	64.53	to 65.75
Ship plates	7 12½	to 8 2½	1.66	to 1.77
Boller plates	9 2½	to 9 12½	1.98	to 2.09
Tees	8 2½	to 8 12½	1.77	to 1.99
Channels	7 7½	to 7 17½	1.60	to 1.71
Beams	7 2½	to 7 12½	1.55	to 1.66
Round bars, ¾ to 3 in.	7 5	to 7 15	1.58	to 1.69
Steel hoops	10 10	to 11 0	2.28	to 2.39
Black sheets, 24 gage	10 0	to 10 5	2.17	to 2.23
Galv. sheets, 24 gage	13 2½		2.85	
Cold rolled steel strip, 20 gage, nom.	14 0	to 14 5	3.04	to 3.10

\*Ex-ship, Tees, nominal.

## Continental Prices, All F. O. B. Channel Ports (Per Metric Ton)

Foundry pig iron (a)		
Belgium	£3 3s.	\$15.34
France	3 3	15.34
Luxemburg	3 3	15.34
Basic pig iron (nom.)		
Belgium	3 0	14.61
France	3 0	14.61
Luxemburg	3 0	14.61
Coke	0 18	4.39
Billets:		
Belgium	4 13	22.65
France	4 13	22.65
Merchant bars:		C. per Lb.
Belgium	5 4	1.15
France	5 4	1.15
Luxemburg	5 4	1.15
Jolts (beams):		
Belgium	4 14½	1.04
France	4 14½	1.04
Luxemburg	4 14½	1.04
Angles:		
Belgium	5 5	1.16
¾-in. plate:		
Belgium (a)	6 9	1.42
Germany (a)	6 9	1.42
¾-in. ship plates:		
Belgium	6 5	1.33
Luxemburg	6 5	1.33
Sheets, heavy:		
Belgium	6 1	1.34
Germany	6 1	1.34

(a) Nominal.

that foreign business will be better this year than in 1927.

The penalty payable for overproduction by the Central European group of producing countries (Austria, Hungary and Czechoslovakia) was reduced to \$2 a ton. This concession was based on the fact that most of the surplus output of Central Europe is consumed in domestic markets. The International Wire Rod Cartel has advanced prices 5m. (\$1.20) per ton.

The secretary of the Verein Deutscher Eisen und Stahl Industrieller (Association of German Iron and Steel Producers) recently stated that Germany can best meet the competition of low French and Belgian prices by concentrating on the export of high-quality products. He estimates that \$250,000,000 has been invested in German industry since the beginning of 1924 for expansion of production in heavy iron and steel.

### German Domestic Market Less Active— Prices Unchanged

(By Radio)

BERLIN, GERMANY, April 2.

ALL steel prices are unchanged for April. Orders are coming in unsatisfactorily and the pig iron and steel markets are weaker. It is reported that the United Steel Works will reduce its steel output by 40,000 tons monthly and will also curtail its rolling mill operations.

The most active domestic demand is for semi-finished material, steel bars, wire rods, wire and heavy gage sheets.

Demand for structural material, light gage sheets and rails is declining. The domestic tube market is decidedly weak. Steel consuming manufacturers are buying cautiously. Export trade in all products, especially tubes, is better, but the price advance has temporarily ceased.

### Considerable Iron and Steel Shipped by Water in Germany

HAMBURG, GERMANY, March 17.—The steel industry has developed considerable traffic on the German rivers and canals, a fact which accounts, at least in part, for the ability of the industry to quote prices competitive with Belgian, French and Luxemburg mills, although wages and taxes are higher. Some German works receive and ship almost all their materials by water. This is especially true of seaboard blast furnaces at Bremen, Lübeck and Stettin. Their iron ore comes from Sweden, Spain or North Africa to their own docks, and the coal for their coke ovens, from British ports or Rotterdam, Holland. Limestone is received from the interior by canal. The finished product is either shipped abroad or to German consumers able to accept shipment by river or canal.

### Simplified Practice in Belgium

Standardization of industry through simplification of manufacturing processes and its resultant elimination of waste in money, time and material is attracting the increased attention of Belgian industries, according to a report received by the Department of Commerce from George W. Berkalow, assistant trade commissioner, Brussels. The Belgian Association of Standardization has inaugurated a campaign to impress the industrialists, merchants and economists with their responsibility in the matter and has published pamphlets on various subjects regarding standardization. Among those treated are construction of bridges, simplification of steel rivets, copper rivets, chains, metallic cables and water pipes.

"Generated vs. Purchased Electric Energy" is the subject of a brief paper which has been reprinted from *Power Plant Engineering* and is being distributed by its author, H. O. Swoboda, consulting engineer, 3400 Forbes Street, Pittsburgh. The pamphlet, of 16 small pages, contains a number of illustrations. It deals with some concrete problems involved in an investigation of the subject matter covered in the title.

## GERMAN HOME MARKET ACTIVE

### Unemployment Declining as Spring Demand Develops—Steel Output Near 1913

BERLIN, GERMANY, March 15.—Despite a favorable business situation, it is still believed that the present year will show less activity in domestic steel-consuming industries than 1927. Unemployment is declining and the usual spring demand for materials, especially for building operations, has begun.

February iron and steel output was considerably better than a year ago. Production of pig iron totaled 1,122,384 metric tons, compared with 968,774 tons in February, 1927, and steel output was 1,322,695 tons, compared with 1,233,609 tons in the same month of last year. Steel production is now at 92 per cent of the 1913 figure for pre-war Germany, and 1913 was a year of heavy production. It is noteworthy that consumption of iron and steel scrap last year totaled 9,200,000 tons, compared with 5,500,000 tons in 1913. The scrap used in 1927 equaled iron ore consumption, while 70 per cent of all materials used in 1913 was ore and only 30 per cent scrap. Ore imports last year totaled 17,409,000 metric tons, which included 8,652,000 tons from Sweden, 3,081,000 tons from Spain and 2,867,000 tons from France.

Domestic iron and steel prices are unchanged. As a result of a buying movement in the French domestic market, low quotations to German consumers by French mills have been withdrawn. Another favorable factor in current business is increased demand from abroad, particularly from the Far East. Higher export quotations seem to have served to stimulate purchasing. Although the margin between German domestic prices and quotations in the "world market" has been reduced by recent advances in the export market, the difference is still great. The price of Belgian bar iron, f.o.b. Antwerp, has advanced steadily since October, but the German domestic price still exceeds it by about 25 per cent.

Foundries report a decline in business. Belgian and Dutch competitors are underselling them in the Western frontier districts, especially on castings for electrical and agricultural machinery and machine tools. This is attributed in part to the high cost of working capital in Germany. Nearly all German manufacturers are short of capital and the Reichsbank policy of restricting municipal borrowing from abroad is given as one cause. Not being permitted to obtain foreign loans, the municipalities are obtaining credit from domestic manufacturers who supply them with materials required for various projects.

The efforts to promote an international understanding on tin plate recently made by British tin plate manufacturers are not expected to have much success. German competition for tin plate business is increasing, and German exports of tin plate in 1927 exceeded the 1926 figure by about 90 per cent. In the past two years Germany has had export surpluses of tin plate, whereas formerly there was an import surplus. Compared with 1913, the output has about doubled.

The machine tool and textile machinery industries report some slackening of business. Demand for agricultural machinery has increased, but business is hampered by purchasers' demands for long-term credits. Builders of railroad and street cars are seeking an agreement for a distribution of orders. Under an agreement made last year, all orders for cars from the Railroads Corporation are distributed among the member firms of the car builders' syndicate, the Deutsche Wagenbauvereinigung, on a quota basis. The present plan is to extend this distribution to cars purchased by private companies and municipalities.

### German Workers Have Shorter Week

HAMBURG, GERMANY, March 17.—Effective April 1, the working time in the steel industry will be 60 hr. per week for blast furnace workers, 52 hr. per week for employees in open-hearth plants, 48 hr. per week in structural mills and 51 hr. per week in plate and sheet mills.



## STEEL IMPORTERS MORE ACTIVE

### Bidding On Some Bridge Work—Prices Lower —Japanese Railroads Revise Specifications

NEW YORK, April 3.—Steel importers in New York report slightly more activity in sizable projects, but current buying of foreign steel is small and there is not much expectation that foreign steel will be bought for work on which bids have been submitted. Quotations on open-hearth reinforcing bars have been made to contractors bidding on the Bayonne-Port Morris, N. J., bridge and on a bridge at Raritan, N. J. Prices on European steel are slightly lower than after reaching a peak about a fortnight ago. Current quotations range from 1.70c. to 1.75c. per lb., base, on plain steel bars and 1.65c. per lb., base, on structural material. There is some business in hot-rolled strip steel, the foreign product being from 80c. to \$2 per ton under the current domestic market.

No appeal from the decision by Justice I. F. Fischer, sitting in Customs Court, that reinforcing bars are dutiable as construction material instead of steel bars, has been entered by the Government. Meanwhile, a similar decision based on Justice Fischer's finding has been rendered in the case of Henry L. Exstein & Co., New York. This second decision involved imports of about \$100,000 worth of reinforcing bars.

#### Exports to Japan Light

Except for small purchases of tin plate by Japanese merchants and some grooved and girder rail business, trade with the Far East has been light. A tonnage of six miles of 122-lb. and one mile of 140-lb. guard rails has been placed by Tokio municipality with an American mill. Yokohama municipality has awarded 10 miles of 91-lb. high T-rails and three miles of 136-lb. T-rails to a Japanese export house. Part of the order is expected to go to a Continental maker. The Han-Shin Electric Railway in Japan has closed on five miles of 100-lb. rails, A. R. A. specifications, with a Continental mill and has placed two miles of 60-lb. rails and 50 pieces of 91-lb. high T-rails with the Yawata steel works in Japan.

According to recent reports from Japan, the Imperial Government Railways, which contemplates gradually replacing all its track with 100-lb. rail sections, will probably buy most of its future requirements from the Government works at Yawata. At present only the main lines of the Government railroads are constructed with 100-lb. sections, such as the Tokio-Yokohama division and the Kobe-Osaka division. It is understood that a new specification will call for 45-ft. lengths.

### Cancellation of Certain Commodity Rates on Iron and Steel Products

WASHINGTON, April 2.—The Interstate Commerce Commission, in a recent decision, justified the proposed cancellation by the railroads of certain commodity rates on iron and steel articles, in less-than-carload lots, in the Official, Illinois and Western classifications. The commission said the cancellations would eliminate preferences and discriminations. The products affected generally are given a fourth-class rating, but a few of them are rated as high as first class and others between first and fourth.

The commodity rates which the railroads proposed to cancel were established to favor particular movements, especially between important commercial centers in northern Illinois, southern Wisconsin and adjacent territory, according to the decision. For the most part, it was declared, these commodity rates applicable to interstate traffic now approximate the level of the fourth-class rates. The opinion added that the few accompanying cancellations of commodity rates in Central territory proper merely do away with rates which have fallen into disuse, restore the classification bases without change in rate levels, or cancel rate groups which do not correspond with those of the class rates. For movements wholly within Illinois territory, however, it is stated, the present commodity rates are much below the fourth-class level.

## JAPANESE SHEET PRICES LOW

### Domestic Maker Moving Good Tonnages at Less Than Foreign Prices—Tin Plate Firm

February business in Japan was generally considered the worst on record, says the monthly report of A. Cameron & Co., Kobe. However, customs returns indicate that for the first two months of the year the adverse trade balance was reduced by yen 15,000,000 (\$7,153,500) compared with the same period of 1927.

Slack money conditions still prevail, and it was reported on the Tokio stock exchange that the Bank of Japan would be compelled again to lower its rediscount rates. Further lowering is not generally approved, it being contended that such action would stimulate the demand for money, creating an exorbitant note circulation, false prosperity and depreciated currency.

At the end of last year, in expectation of a higher tariff on sheets which did not develop, there was considerable speculative buying. As a result, about 7000 tons of sheets arrived during February, and, with no possibility of any tariff increase this year, the importers are now seeking to dispose of their stocks. Meanwhile, the Kawasaki Dockyard Co. continues to sell black sheets in lots of 1500 to 2000 tons, and each sale shows a further recession in price, as low as 50 sen (25c.) per sheet having been quoted. The market price based on most sales, however, ranges from 73 to 73.50 sen (36½c. to 36¾c.) per sheet for American, 72 to 72.50 sen (36c. to 36¼c.) for British and about 71 sen (35½c.) per sheet for the domestic product.

Local galvanizing plants have booked a good tonnage of galvanized sheets from Chinese merchants. As the business was taken at low prices, defective sheets have been used in rather large quantities. Heretofore British defective sheets were about the only imports, but recently American defective sheets have been finding a ready market.

Not long ago the Kawasaki Dockyard Co. contracted with Belgian and German makers for 12,000 tons of sheet bars a month. The dockyard, however, had insufficient stock to await April-June delivery and has been experimenting on the production of its own sheet bars. Should present efforts prove successful, it is expected that the largest sheet bar consumer in Japan will begin to make its own supplies.

Only a small tonnage of tin plate was imported during January, so that local stocks have been somewhat depleted and the market has taken on additional firmness. The Government works prices for tin plate are about 50 sen (25c.) per base box lower than the British delivered price, and the Government plant is pressing for business for forward delivery. Nevertheless, there are a number of consumers and dealers who prefer foreign tin plate, so that there has been considerable buying of the American and British product recently.

### German Freight Rates on Scrap Reduced

HAMBURG, GERMANY, March 17.—Freight rates on imported iron and steel scrap have again been reduced, provided the material is shipped from a German port and not from a frontier. This reduction directly benefits American and British shippers of scrap to Germany. Varying 25 to 40 per cent from the present freight rates, the new rates apply only to companies shipping a minimum of 40,000 tons annually, who must post a security bond of 100,000 m. (\$23,910) with the German railroads.

### Bolivian Tin Industry Hit by Low Prices

WASHINGTON, April 3.—Low prices for tin, with the possibility of causing curtailed output, are depressing the Bolivian tin industry, according to a cablegram from Consul Joseph F. McGurk, La Paz. The price of tin fell as low as £223 17.5 shillings during March and the month's average price was £228 14.5 shillings. A few of the smaller mines are now said to be working at a loss and others have either reduced the number of employees or have cut wages 10 per cent. The industry, however, is reported generally optimistic in the hope of better prices during the next few months.

# Atlantic Seaboard Imports Dominate

Finished Iron and Steel Coming In on East Coast  
About Half of Total—Five-Sixths  
of Pig Iron Total

BY L. W. MOFFETT\*

**D**ESPITE the 34 per cent decline in the total iron and steel imports into the United States in 1927, compared with those of 1926, there was an increase in the incoming movement of finished products. Shipments of finished steel from abroad last year aggregated 483,202 tons, while those of the previous year amounted to 478,722 tons. The larger total importations in 1926, with 1,110,049 tons as compared with 750,467 tons in 1927, were due mainly to the much heavier 1926 imports of pig iron.

The four principal lines of importations entering the American market are steel bars, structural shapes, cast iron pipe and "other pipe," the latter made up chiefly of seamless tubes. Imports of these four products in 1927 were 385,202 tons, or 79 per cent of the total incoming movement of all finished lines. During the preceding year imports of the four finished lines amounted to 339,518 tons, or 70.9 per cent of the aggregate of imported finished steel. Each year structural shapes led in tonnage of the four finished lines, with steel bars coming second, cast iron pipe third and "other pipe" fourth.

Imports of structural shapes in 1927 amounted to 161,848 tons, increasing from 121,099 tons in 1926, while steel bar imports declined to 91,497 tons from

103,473 tons. Cast iron pipe imports decreased to 81,769 tons from 83,873 tons and imports of "other pipe" rose to 50,088 tons from 31,073 tons. Pig iron imports showed a remarkable drop to 133,068 tons in 1927 from 445,773 tons the previous year.

Belgium was the principal source of imports, during both years, of structural shapes and steel bars. France led in both years as the source of cast iron pipe imports, while Germany supplied the bulk of "other pipe" imports during the two periods. India was the largest supplier of pig iron imports in 1927, succeeding to the position held in 1926 by Germany, when the latter country furnished 157,094 tons of pig iron for the American market. In 1926 Germany supplied only 9711 tons of pig iron, a drop of 93.8 per cent.

The Atlantic seaboard was the largest recipient each year of pig iron and the aggregated four finished line imports, taking 107,797 tons and 388,781 tons of pig iron in 1927 and 1926, respectively, and 183,530 tons and 169,120 tons of the four finished lines. The Pacific Coast each year received more than half the total imports of "other pipe." The Atlantic Coast led in receipts of other lines, but with a margin in certain instances which reflected a shift toward greater imports into the Pacific Coast area particularly.

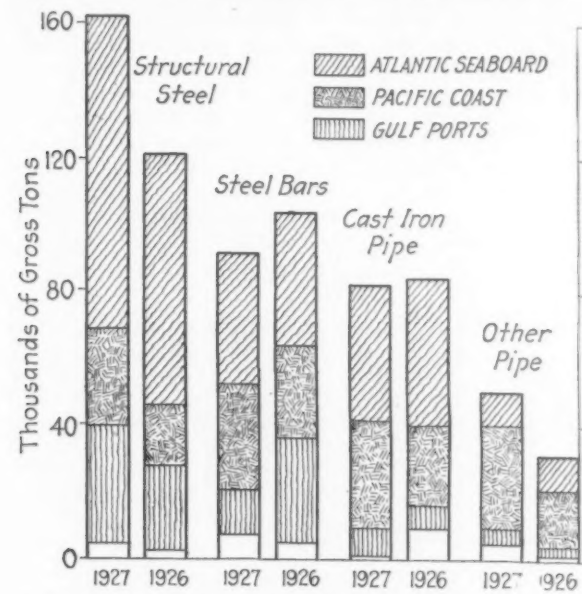
Imports of the four finished products through the Atlantic Coast last year represented 47.7 per cent of

## Imports for Calendar Years 1927-1926

(Gross Tons)

Ports of Entry and Countries of Origin	Steel Bars		Shapes		Cast Iron Pipe		Other Pipe	
	1927	1926	1927	1926	1927	1926	1927	1926
<b>ATLANTIC:</b>								
Belgium .....	17,017	15,001	58,209	53,454	2,065	9,167	30	40
France .....	8,979	7,630	20,202	6,143	36,547	34,229	160	153
Germany .....	4,232	3,118	14,387	14,007	1,817	541	2,482	4,010
Netherlands .....	439	4,418	61	923	....	....	371	821
Sweden .....	7,234	7,666	....	....	....	....	437	459
United Kingdom .....	1,252	866	769	598	....	37	2,220	2,325
Canada .....	1	....	32	70	....	....	3,735	2,477
All other .....	71	632	36	289	453	....	292	46
Total .....	39,225	39,331	93,696	75,484	40,882	43,974	9,727	10,331
<b>GULF:</b>								
Belgium .....	9,220	20,050	21,806	14,559	....	....	1,324	1,374
France .....	952	4,609	780	1,630	7,015	6,445	1,027	808
Germany .....	2,268	6,039	11,253	5,644	....	....	2,253	245
Netherlands .....	....	2	66	3,765	....	....	28	....
Sweden .....	144	380	....	1	....	....	....	....
United Kingdom .....	....	....	....	3	....	....	1	139
Canada .....	....	....	....	....	....	....	....	....
All other .....	604	....	1,235	....	1,194	....	....	....
Total .....	13,188	31,080	35,140	25,602	8,209	6,445	4,633	2,566
<b>PACIFIC:</b>								
Belgium .....	20,110	21,277	21,727	16,878	12,768	12,091	1,930	163
France .....	4,148	580	6,076	36	19,895	9,507	3,155	484
Germany .....	6,743	5,652	1,124	1,274	....	1,472	22,184	15,517
Netherlands .....	343	280	....	174	....	946	90	....
Sweden .....	285	438	....	....	....	....	....	....
United Kingdom .....	45	....	187	108	....	....	338	....
Canada .....	....	....	....	....	....	....	....	....
All other .....	....	....	137	101	2	....	3,316	1,033
Total .....	31,674	28,227	29,251	18,571	32,665	24,016	31,013	17,197
<b>OTHER PORTS:</b>								
Belgium .....	2,169	245	1,362	286	1	990	27	....
France .....	55	22	218	19	1	7,173	4	2
Germany .....	1,861	1,116	1,496	652	1	....	69	67
Netherlands .....	636	368	471	386	....	....	....	....
Sweden .....	1,112	1,077	....	....	....	....	....	....
United Kingdom .....	638	633	51	18	6	1	208	29
Canada .....	116	188	88	81	4	698	483	313
All other .....	823	1,186	75	....	....	576	3,924	568
Total .....	7,410	4,835	3,761	1,442	13	9,438	4,715	979

the total incoming movement of these tonnages, while in 1926 they were 49.8 per cent. Imports of these products through the Gulf Coast last year, amounting to 61,170 tons, constituted 15.8 per cent of the total, as compared with 65,693 tons or 19.3 per cent in 1926. Imports of these products through the Pacific Coast in 1927 amounted to 124,603 tons or 32.3 per cent of their



IMPORTS of Four Leading Finished Lines of Iron and Steel in 1927 and in 1926, Showing Where the Tonnages Came In

total, while in 1926 they were 88,011 tons or 25.2 per cent. Receipts of the four products through inland ports of continental United States and into Porto Rico were 15,899 tons or 4.2 per cent last year and 16,694 tons or 5.7 per cent the preceding year.

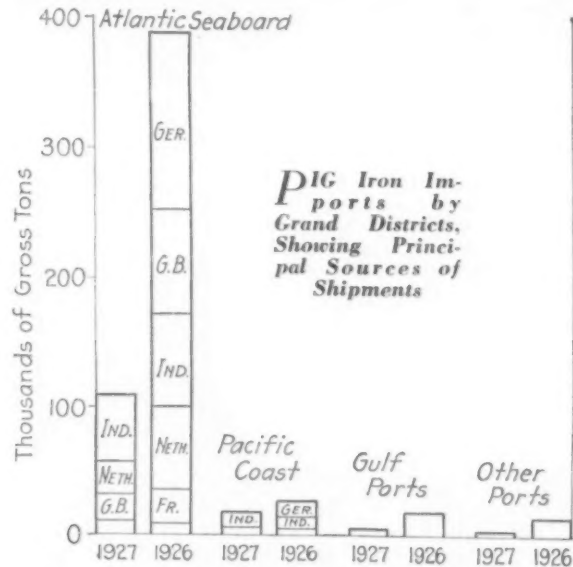
Belgium supplied 48,516 tons, or 53 per cent, of the steel bar imports last year. In the previous year Belgium supplied 56,573 tons, or 54.6 per cent, of the 103,473 tons of steel bars imported. The Pacific Coast received 31,674 tons of steel bar imports, 34.5 per cent of the total, in 1927, Belgium supplying 20,110 tons. In 1926 receipts of steel bars from abroad through the Pacific Coast amounted to 28,227 tons, or 27.2 per cent of the total, Belgium furnishing 21,277 tons.

Belgium was the source of 103,104 tons, or 65.3 per cent, of structural steel imports in 1927, the Atlantic Coast receiving 93,696 tons or 57.8 per cent of the total, with the Gulf ports taking 35,140 tons or 21.9 per cent.

In 1926 Belgium supplied 85,177 tons, or 70 per cent, of the total structural steel imports of 121,109 tons. Receipts through the Atlantic Coast were 75,484 tons or 62.3 per cent of the total.

France furnished 63,458 tons of cast iron pipe, or 77.6 per cent of the total imported in 1927. Imports of cast iron pipe from France in 1926 amounted to 57,354 tons, or 68.1 per cent of the total of 83,873 tons.

Germany supplied 26,988 tons, or 53.9 per cent, of the "other pipe" imported in 1927, the Pacific Coast



receiving a total of 31,013 tons. In 1926 Germany was the source of 19,839 tons, or 63.8 per cent of the 31,073 tons of imported "other pipe."

Germany supplied only 7.29 per cent of the 1927 pig iron imports, against 35.2 per cent in 1927, while India furnished 50 per cent and 18.7 per cent, respectively; the Netherlands 22 per cent and 15.4 per cent; and the United Kingdom, 15.1 per cent and 20.6 per cent. The Atlantic Coast received 81 per cent of the total pig iron imports in 1927 and 84.5 per cent in 1926.

The Erie Foundry Co., Erie, Pa., has shipped to Milan, Italy, one of its latest improved type high-speed steam drop hammers for exhibition at the Milan Fair, which is to be held during April, May and June. There are already installations of Erie hammers in many of the drop forging shops in Europe, notably in the shops of the leading automobile builders.

#### Imports for Calendar Years 1927-1926

(In Gross Tons for All Ports of Entry)

Countries of Origin	Steel Bars		Shapes		Cast Iron Pipe		Other Pipe	
	1927	1926	1927	1926	1927	1926	1927	1926
Belgium .....	48,516	56,573	103,104	85,177	14,834	22,248	3,311	1,577
France .....	14,134	12,841	27,276	7,828	63,458	57,354	4,346	1,447
Germany .....	15,104	15,925	28,260	21,577	1,818	2,013	26,988	19,839
Netherlands .....	1,418	5,068	598	5,248	....	946	489	821
Sweden .....	8,775	9,561	1	1	....	....	437	459
United Kingdom .....	1,935	1,499	1,006	727	6	38	2,767	2,493
Canada .....	117	188	120	151	4	698	4,218	2,790
All other .....	1,498	1,818	1,483	390	1,649	576	7,532	1,647
Grand total .....	91,497	103,473	161,848	121,099	81,769	83,873	50,088	31,073

#### Imports of Pig Iron for Calendar Years 1927-1926

(By Ports of Entry, in Gross Tons)

Countries of Origin	Total Imports		Atlantic Seaboard		Gulf Ports		Pacific Coast		Other Ports	
	1927	1926	1927	1926	1927	1926	1927	1926	1927	1926
India .....	66,627	83,311	51,802	71,097	3,154	3,246	11,254	7,836	317	1,132
Belgium .....	699	7,488	100	3,887	....	550	399	3,051	200	....
France .....	3,000	28,449	3,000	27,799	....	450	....	200	....	....
Germany .....	9,711	157,094	5,881	137,295	1,075	5,725	2,105	12,074	650	2,000
Netherlands .....	29,383	69,054	25,298	63,765	80	600	3,265	2,923	750	1,756
Sweden .....	1,704	3,455	1,077	3,057	....	....	300	5	327	393
United Kingdom .....	21,139	92,083	20,639	81,381	100	6,700	230	150	170	3,852
Canada .....	725	4,767	....	500	....	....	....	37	725	4,230
All other .....	80	72	....	....	....	....	....	....	80	72
Total .....	133,068	445,773	107,797	388,781	4,409	17,271	17,653	26,276	3,219	13,435
Per cent .....	100	100	81.0	87.2	3.3	3.9	13.3	5.9	2.4	3.0



## SORTING NON-FERROUS SCRAP

Color, Fracture, Knowledge of Source and Type of Casting, and Specific Gravity All Used

SOME 250 different stock items will be found on the inventory of a typical producer of non-ferrous metals or centralized dealer in such wastes, according to Don C. Blackmar, superintendent Federated Metals Corporation, Detroit. In a paper read before the February meeting of the Institute of Metals at New York he gave a representative classification for yellow brass and said that something like this must be used if the maximum profit is to be secured from miscellaneous purchases of scrap.

### Sorting and Storage Classifications for Yellow Brass

No. 1 brass tubes	Yellow brass faucets
No. 1 brass pipe	No. 1 high yellow cast scrap
Clean nickel-plated tubes	Aluminum-brass cast scrap
Soldered brass tubes and clips	Brazing spelter scrap
No. 1 brass clippings	No. 1 manganese-bronze cast scrap
Leaded brass clippings	Manganese-bronze cast turnings
Medium brass	No. 1 yellow rod turnings
Light brass	Yellow cast brass turnings
Old rolled brass	Yellow brass grindings
Leaded brass rod ends	Yellow brass furnace residues
Automobile radiators	Yellow brass with iron
Rifle shells	
Tableware (nickel and silver-plated)	
Mixed small clippings (soldered or plated)	
Gaskets	

Actual sorting of non-ferrous scrap (the most important operation prior to remelting it into usable ingots) calls for a combination of knowledge of its source, observation of color and shape, and laboratory tests. Large shipments of uniform materials offer no difficulties. Mixed lots must be screened through a coarse riddle, hand picked, and magneted. The hand sorting may be done while screening, and heavy brass wire riddles are used so that no interference is offered to using hand magnets. Screenings, borings and small scrap are machine-magnetized on double-belt pick-up machines. A second magnet completes the work, so that reasonably dry material may then be considered iron-free. After sorting and magnetizing, sheet clippings, wire and light material are bricked in a hydraulic press to convenient size. Certain classes are pressed into bales weighing around 1000 lb. and are wired and wrapped in burlap for convenient shipping. Other materials are stocked in bins according to class.

Other groups of waste materials which are treated according to the same general scheme include copper, red brass, babbitt, solder, typemetals, lead, tin, zinc, zinc-base die castings, nickel-bearing alloys and aluminum. Any one or all of these materials may be received in a few hundred pounds or a carload. The sorters differentiate between several grades of red and yellow brass by color and fracture. Files and scrapers are used on dirty, painted or plated pieces to show color, and every casting must be closely examined for iron screws and other harmful materials.

Long experience and a wide knowledge of the current commercial practice and use of metals in every trade are the most valuable assets to supervisors of sorting. It is vitally important, for example, to know what type of casting will probably be aluminum bronze; therefore all gears, welding-machine parts, acid-tank rods and paper-mill pipe fittings, or plating baskets are regarded with utmost suspicion. Manganese bronze may also be recognized by the type of casting. Different grades of sheet-metal clippings may be identified by similar knowledge, coupled with color and fracture tests. The aluminum-sheet and extruded-shape wastes are becoming complicated due to use of alloys, but by recognizing the purpose and knowing the source, together with hardness and bending tests, a very close grading is accomplished. Rapid laboratory tests are constantly made to check and establish precedents for materials of uncertain antecedents. Sorters use the specific gravity balance to check solders and other soft white metals, as well as melting and pouring tests, whereby the "set" of a small bar discloses the difference between a typemetal and a similar composition of lead-base alloy containing copper.

Sorting of copper scrap for remelting presents no special difficulties. Elimination of iron and segregation

of tinned and soldered clips and wire and bronze alloys are fairly easy. Common sense, knowledge of uses of metals, and laboratory tests make it possible to grade all these materials very precisely. Where there is any doubt as to exactness in sorting, the lower grade is selected or else the material goes to a smelting furnace.

Residues, which include all skimmings, drosses and ashes are almost wholly classified by chemical analysis. The laboratory tests show the percentage of metallic, analysis of metallic, acid content (chlorine), iron, sulphur, aluminum and silicon. These elements are considered in smelting to avoid unnecessary losses.

It is at times economical to screen and magnet drosses; with the fines and iron removed, contaminants may be easily picked out. Examples of this are solder sweepings from automobile-radiator manufacturers, which may contain brass tubes, and electrotypers' dross containing copper trimmings.

## Americans Handicapped in Selling to Japan by F. A. S. Quotations

Most American business men feel that a prime requisite in selling goods in Japan is to ask for payment f.a.s. American ports, but this is a handicap to the American business house trying to sell goods in the Orient, declared J. S. Ruble, vice-president and manager of construction of the H. K. Ferguson Co., Cleveland, in a talk before the Foreign Trade Division of the Cleveland Chamber of Commerce March 30. Mr. Ruble has just returned from his fourth trip to Japan, where his company is engaged in construction work.

The English and Germans, the latter particularly, he said, have an arrangement whereby they can accept payment on delivery to consumer or at least on delivery to the Japanese importer. It is important to make arrangements by which deliveries can be made in Japan without handicap to the consumer. A large manufacturer can have personal representation in that country and small business concerns might combine to have a personal representative there. The third alternative is to arrange with a large Japanese importing concern to handle the business. These concerns import anything on which they can make a commission and are not particularly qualified to exploit and demonstrate the merchandise they import. They may make a quotation on a product and on two or three competitors' corresponding products at the same time.

The danger in making shipments c.i.f. or on actual delivery to the consumer, he said, is that an unscrupulous consumer may refuse to accept the shipment on the ground that it did not meet its specifications, was delivered in bad condition, or he may misrepresent the quantity. However, if an exporter has a personal representative or an importer in good standing to deal with, there is little difficulty from this type of complaint.

Apparently the best thing to do, said Mr. Ruble, is to make an arrangement with an Oriental importer with proper credit standing, who can be held responsible for payments, but who will sell the product with the aid and inspection of the American representative.

The financial situation in Japan is still bad, said Mr. Ruble. For the last six years Japanese imports have largely exceeded exports and no healthy financial condition can be expected until their production exceeds consumption.

Referring to conditions in industrial plants, he said that there are factories in Japan where an employee produces the same number of parts per hour as are produced by a workman in a similar American factory. When Japan generally speeds up production it will become a competitor of other manufacturing nations, because of its low labor costs. The successful manufacturing industries in Japan include electric lamp production, telephone production, electric power equipment and steel fabrication. Their steel mill operation is Government subsidized and is not successful. Many important large businesses in Japan are now being subsidized. One of the handicaps of Japanese industry is that an employer is not permitted to discharge a factory worker except for causes that are satisfactory to the Government and then only on the payment of a bonus for discharge which is equivalent to one month's pay for each year of service.

## ELECTRIC FURNACE IRON

### Results of Extended Experiments Show Practicality, Advantages and Costs

ALTHOUGH the cupola is the cheapest melting device for the production of molten iron under normal market conditions for pig iron, coke and clean cast iron scrap, there are conditions under which expense of melting is not the major factor, so that certain other advantages possessed by the electric furnace sometimes make it more desirable, says the United States Bureau of Mines. A comprehensive investigation of the making of electric furnace cast iron has been completed by the bureau at its Northwest Experiment Station, Seattle, Wash., in cooperation with the College of Mines of the University of Washington. The investigation involved a year's successful operation of a jobbing foundry making miscellaneous gray iron castings from steel scrap.

Under the special conditions that make the electric furnace advantageous, this type of furnace need not necessarily displace the cupola but can be used in conjunction with it. The ability of the electric furnace, and not of the cupola, to refine and to superheat iron and the superiority in many ways of electric furnace iron to cupola iron make the electric furnace advantageous under special conditions. In addition, the possibility of producing electric furnace cast iron from cheap grades of ferrous scrap has brought the electric furnace into prominence.

Electric furnace cast iron is stronger, tougher, and more dense than cupola iron, and a higher recovery of metal in casting can be obtained as a result of the higher pouring temperature, state C. E. Williams and C. E. Sims, in Technical Paper 418, just issued by the Bureau of Mines. Cast iron scrap of high-sulphur content can be converted into high-grade cast iron, low in sulphur, either by melting directly in the electric furnace or by refining molten metal from the cupola. Large additions of steel scrap may be used if desirable, or steel scrap can be used entirely and synthetic cast iron made. Some of the advantages of the production of synthetic cast iron are outlined below.

#### Both Iron and Steel Can Be Made

One electric furnace can be used to produce both iron and steel and can thereby be kept in operation during periods when it might otherwise be idle. By operating an electric furnace continuously labor is kept usefully employed, the heat of the furnace is conserved, life of the refractories is extended, overhead charges are reduced, and a high load factor on the power lines is maintained. Therefore, even under conditions where production of synthetic iron would not of itself be economical, it might be profitable in conjunction with the making of steel, because of the possibility of reducing the cost of producing steel.

A large variety of steel and iron scrap can be used to make the same product, and many different products can be made from the same materials. As a rule, scrap is purchased locally, and the foundryman can buy and use what is at hand without shopping around for special materials. The production of synthetic iron in a steel foundry simplifies the purchase of steel melting scrap. For instance, the making of acid steel requires selected scrap, for which a higher price must be paid than for general scrap; but if, in addition to steel, synthetic iron is made, miscellaneous steel scrap may be purchased at a minimum price and the foundryman can do his own sorting, using the best scrap for acid steel.

Synthetic iron may be tested and adjusted for composition and temperature before it is poured, thus assuring castings of the desired composition. Moreover, if the pouring crew is not ready, the metal can be kept

hot as long as necessary, whereas metal must be taken from the cupola when enough has been melted to pour.

#### Electric Iron Stronger

In the electric furnace a superior iron, having about twice the strength of ordinary cupola iron, can be made. Transverse strengths of 5000 to 6000 lb. on standard bars of synthetic gray iron have been repeatedly obtained, and tensile strengths above 40,000 lb. per sq. in. are common. One of the outstanding characteristics of electric furnace gray iron is its resistance to the impact of shock. These advantages in strength and toughness are due largely to the physical structure of the iron, which is fine grained and dense. The graphite exists in such small flakes that a piece of synthetic iron of the same graphitic carbon content as a piece of cupola iron will appear to contain less graphite. Although it looks whiter and harder than cupola iron, synthetic iron is soft and easily machined. A coarse-grained synthetic iron can be obtained only when the carbon and the silicon contents are exceptionally high. Ordinary synthetic iron is at least equivalent in strength to the so-called high-test irons and semi-steels of the cupola.

Virtually any kind of ferrous scrap can be used in the electric furnace, thus providing a means for industrial plants to utilize the scrap they produce instead of shipping it away at an economic loss. Besides steel scrap, which may be carburized to gray iron, gray iron borings and light scrap may be used profitably.

The production of synthetic cast iron in the electric furnace is advantageous in such places as large non-ferrous smelters and mills, where pig iron is expensive and ferrous scrap is usually available. Many ore-concentration plants consume a large tonnage of steel and iron balls and ball-mill liners for fine grinding, and satisfactory white cast iron for these purposes could be made economically at the plant.

A tough and hard white iron, such as may be produced in the electric furnace from steel scrap, will find useful application where resistance to shock and abrasion are required.

The detailed results of this investigation are given in Bureau of Mines Technical Paper 418, "Electric-Furnace Cast Iron," which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, at a price of 10c.

### Increasing Employment in Metal-Working Industries

Comparison of numbers on payrolls and amounts of payrolls in identical establishments show a healthy increase in February over January, according to figures of the United States Bureau of Labor Statistics. In 199 iron and steel plants the number on payrolls increased from 252,261 to 260,609, or 3.3 per cent. Meantime, the amount of the total week's payroll increased 11.9 per cent, from \$7,430,652 in January to \$8,312,582 in February. This indicates that the average pay envelope had about 8.5 per cent more in it in the latter month.

Similarly, for 950 establishments turning out foundry and machine shop products, the number on payrolls increased from 216,968 to 222,420, or 2.5 per cent. At the same time the amount of the week's payrolls increased by 6.9 per cent, from \$6,218,129 to \$6,647,302. Similar gains are reported in 148 establishments making machine tools, which show an advance of 2.6 per cent in employment and 6.4 per cent in the amount of payroll. Other metal-working establishments participated in the same improvement, with the exception of 37 plants making cast iron pipe, which show a reduction of 2.5 per cent in number of employees but an increase of 12 per cent in the amount of the payroll.

---

*Schedule of the next instalments of the Business Analysis and Forecast, by Dr. Lewis H. Haney, Director New York University Bureau of Business Research, follows: April 12—Activity in Steel Consuming Industries; April 19—Position of Iron and Steel Producers; April 26—General Business Outlook.*

---



## National Metal Trades Association Arranges Convention Program

The program for the thirtieth convention of the National Metal Trades Association, to be held at the Hotel Astor, New York, April 25 and 26, will deal with problems and methods relating to the metal trades industry in the fields of production and labor.

Features of the meeting will be the following addresses: "Industrial Budgeting," by Howard Coonley, president Walworth Co., Boston; "Rackets and Racketeering," or the practices employed by labor leaders, especially in Chicago, by Gordon L. Hostetter, executive secretary Chicago Employers' Association; a study of mechanization of industry and unemployment to be presented by Magnus W. Alexander, president National Industrial Conference Board; "The Government in Business," by Bernard J. Mullaney, vice-president People's Gas, Light & Coke Co., Chicago; "Business Profits," by Dr. Charles J. Bullock, director Harvard Economic Society, Cambridge, Mass.; "The Significance of the Present Situation to Change the Laws in Respect to Labor Combinations," by Walter Gordon Merritt, counsel for League of Industrial Rights.

At the banquet Wednesday evening, April 25, Charles Nagel, former Secretary of Labor and Commerce, will speak on "The Majesty of Law," and Dr. Samuel W. Grafflin, one time director industrial relations Ward Baking Co., New York, will also speak.

At the closing session George W. Seyler, Lunkenheimer Co., Cincinnati, will conduct a demonstration in foremen training and Floyd Darrow will relate "The Story of Chemistry," with a demonstration of dry ice.

## Iron, Steel and Tin Workers Meet at Middletown, Ohio

The fifty-third annual convention of the Amalgamated Association of Iron, Steel and Tin Workers was opened April 3 at Middletown, Ohio. The principal business of the gathering is to formulate changes in wage scales and working conditions to be presented at a conference to be held some time next month between sheet, tin plate and bar iron manufacturers operating under an agreement with the association and its wage scale committee. There was no advance information as to what the demands of the men are going to be, since the recommendations of the wage scale committee must first be approved by the general membership as represented by delegates to the convention.

## Steel Club of Cleveland Holds First Banquet

The Steel Club of Cleveland held its first annual banquet at the Hollenden Hotel, Cleveland, March 30. There were over 100 present including sales managers and other members of sales organizations of steel companies, purchasing agents and other representatives of consuming industries. J. G. Carruthers, general sales manager of the Otis Steel Co., is president of the club.

## Waste Material Dealers Meet

The fifteenth annual convention and dinner of the National Association of Waste Material Dealers was held March 21 at the Hotel Astor, New York. At a meeting of the scrap iron division, under the chairmanship of H. R. De Groat, A. M. Wood & Co., Philadelphia, there was consideration of the problem of educating dealers to a better understanding of costs in handling materials. The metal division with George Birkenstein, S. Birkenstein & Sons, Chicago, presiding, devoted considerable discussion to a letter from the Chicago Non-Ferrous Metal Dealers' Association regarding trade practices.

Officers elected for the coming year were: President, Henry J. Lissberger, president Federated Metals Corporation, New York; first vice-president, Carlton B. Overton, Castle & Overton, Inc., New York; second vice-president, George Birkenstein, S. Birkenstein &

Sons, Chicago; third vice-president, R. W. Phillips, E. I. du Pont de Nemours & Co., Wilmington, Del. Charles M. Haskins is the permanent secretary-treasurer of the association. As division heads, H. R. De Groat, A. M. Wood & Co., was reelected chairman of the scrap iron division and E. J. Jarvis, president Niagara Falls Smelting & Refining Corporation, Buffalo, was elected chairman of the metal division.

The dinner was attended by about 500 members and their guests. The retiring president, G. H. Rady, E. J. Keller Co., New York, was toastmaster. United States Senator Walter F. George of Georgia was the speaker.

## Standard Steel Girder Rails

The Bureau of Foreign and Domestic Commerce has just published a pamphlet on industrial standards, No. 204, concerning standard specifications for the manufacture of open-hearth steel girder rails of the plain, grooved and guard types, using the text as adopted by the American Society for Testing Materials. The publication is printed in both English and Portuguese, the translation having been by Kenni Norris Bletz. Copies may be obtained for 5c. each from the superintendent of documents, Government Printing Office, Washington.

## COMING MEETINGS

### April

**American Gear Manufacturers Association.** April 19 to 21. Twelfth annual meeting, Hotel Seneca, Rochester, N. Y. T. W. Owen, 3608 Euclid Avenue, Cleveland, secretary.

**American Society of Mechanical Engineers.** April 23, 24. Meeting of materials handling division, Benjamin Franklin Hotel, Philadelphia. Calvin W. Rice, 29 West Thirty-ninth Street, New York, secretary.

**National Metal Trades Association.** April 25, 26. Annual convention, Hotel Astor, New York. J. E. Nyhan, Peoples Gas Building, Chicago, secretary.

**National Foreign Trade Council.** April 25 to 27. Fifteenth annual convention, Rice Hotel, Houston, Tex. O. K. Davis, India House, New York, secretary.

**American Welding Society.** April 25 to 27. Annual meeting, Engineering Societies Building, New York. Miss M. M. Kelly, 33 West Thirty-ninth Street, New York, secretary.

**American Management Association.** April 26, 27. Fourth financial executives' conference, Hotel Pennsylvania, New York. W. J. Donald, 20 Vesey Street, New York, managing director.

**American Electrochemical Society.** April 26 to 28. Spring meeting, Stratfield Hotel, Bridgeport, Conn. Colin G. Fink, Columbia University, New York, secretary.

### May

**Iron and Steel Institute.** May 3 and 4. Annual meeting, House of Institution of Civil Engineers, London, England. George C. Lloyd, 28 Victoria Street, London, S. W. 1, England, secretary.

**American Refractories Institute.** May 8 and 9. Annual meeting, White Sulphur Springs, W. Va. Dorothy A. Texter, 2202 Oliver Building, Pittsburgh, secretary.

**American Foundrymen's Association.** May 14-18. Annual meeting and exhibition, Commercial Museum, Philadelphia. C. E. Hoyt, 140 South Dearborn Street, Chicago, secretary.

**American Iron and Steel Institute.** May 25. Annual meeting, Hotel Commodore, New York. E. A. S. Clarke, 75 West Street, New York, secretary.

**National Association of Purchasing Agents.** May 28 to 31. Thirteenth international convention and Inform-A-Show, Kansas City, Mo. George A. Reynard, 11 Park Place, New York, secretary.



## FABRICATION IN TRANSIT

### Railroads and Fabricators Unite on Seeking Uniform Basis for Establishing Rates

TO prevent action which might be injurious to the steel fabricating industry and to obtain uniformity and avoid discrimination in fabrication-in-transit arrangements, H. N. Holdren, Pittsburgh, representing a large group of fabricators, early last December presented a tentative suggestion to the railroads as a basis upon which all future transit privileges might be negotiated.

Mr. Holdren's action was prompted by an investigation begun some months previously by the Interstate Commerce Commission with a view toward eliminating transit arrangements involving circuitous routes or back hauls and possible violations of the long-and-short-haul clause of the Interstate Commerce Act. It was said at that time, particularly in the East, that the carriers were considering the cancellation of all fabrication-in-transit rates on iron and steel articles in the United States. Corresponding rates were abolished in Canada some time ago, and some steel makers in this country were said to be willing to have such arrangements abolished in the United States. The fabrication-in-transit privilege makes it possible for mills located some distance from the fabricating shops to supply the steel as advantageously as, and in some cases more so than, a mill near the fabricating plant. This accounts for some rolling mill opposition to the plan and the desire of the fabricating companies to preserve it.

#### *Lack of Uniformity in Rates*

In Official Classification territory the fabrication-in-transit charge is 3c. per 100 lb., while in Western Classification territory it is 2c. per 100 lb. Many fabricators believe that there should be country-wide uniformity in fabrication-in-transit charges and that the privilege should apply on a definite list of articles fabricated from iron and steel. In some sections of the country it now applies on articles not specified in others, resulting in discrimination. Prior to the series of freight rate advances which began in 1914 there was

a uniform charge of 1½c. per 100 lb., and, based upon the measure of the advances and upon one general reduction that has since taken place, the proper rate would now be 2c. per 100 lb. in all parts of the country.

Mr. Holdren made the following proposal:

"Subject to rules, regulations, conditions and charges prescribed in this tariff, carload shipments of iron and steel articles as designated in paragraph (b) below may originate at (here refer to points of origin), be forwarded to (here refer to transit points) for the purpose of bending, bolting, boring, countersinking, cutting, drilling, flanging, gagging, painting, planing, punching, reaming, riveting, sawing, shearing, straightening, tapping, threading or welding, and may be reshipped in carloads to (here refer to points of destination), when the outbound material from the fabrication point is to be further assembled into bridges, buildings, ships, tanks, towers or tunnels."

#### *Carriers Desire Definite Policy*

On March 13 in Pittsburgh the railroads responded with the first of what is expected to be a series of meetings at which steel fabricating companies will be given an opportunity to present their views on the subject. As a result of the growing tendency to create more and more manufacturing-in-transit rates, storage rates, etc., and regulations involving transit privileges, the railroads are of the opinion that they must declare a definite policy for future negotiations, and they saw in Mr. Holdren's proposal an opportunity to open the subject. At the Pittsburgh meeting representatives of the railroads in Official Classification territory, with L. E. Oliphant of the Central Freight Association as chairman, heard the Pittsburgh district manufacturers, fabricators and others.

At the Pittsburgh meeting Mr. Holdren made it clear that he would not oppose any reasonable proposition for fabrication-in-transit which included articles in addition to those enumerated in his proposition, as it was merely a tentative suggestion. However, he declared that the loss of the privilege on existing routes would be a serious loss to the fabricators and that restricting the routing to direct routes would result in a loss of business to both fabricators and carriers.

### Plates for Navy Sold at 2.24c., Delivered Norfolk

WASHINGTON, April 3.—Submitting the lowest bid, 2.24c. per pound, delivered at Norfolk, Va., John T. Hill is expected to be awarded a contract for supplying 450 net tons of steel plates to be used as blister shell plating and blister shelf for the battleship Nevada. The steel will be made by the Central Iron & Steel Co., Harrisburg, Pa. Mr. Hill also was the lowest bidder at 3.53c. per pound, carlots, delivered at Occaquan, Va., on sheet steel for automobile license tags for the District of Columbia, the maker to be the Apollo Steel Co.

### Advocates Eye Conservation in Industry

America must safeguard the eyes of its workers, for without sound vision industry is handicapped and reasonable attainment of human happiness made difficult, James J. Davis, secretary of the United States Department of Labor, declares in a statement made public by the Eye Sight Conservation Council of America, of whose board of councillors he is a member.

"Until recent years," Secretary Davis says, "care of the eyes was regarded largely as a question for the individual. Development of the physical sciences, and their application through engineering has, however, revealed eyesight as a problem of national concern."

"In industry and in education the need of organized eye conservation has been most insistently pressed, for it is in these spheres that untoward conditions have been most convincingly uncovered. It is now plain that a child without good eyes cannot be expected to make normal progress in school. It is equally plain that workers, whether in factory, office, field or mine, cannot meet the obligations of their tasks unless they can

see with the ease and precision intended by nature.

"The economic and social losses resulting from defective eyesight are now beginning to be realized. Inquiries by governmental and public service bodies are tracing to poor eyesight an appreciable portion of industrial waste. Defective vision ranks well up among the contributing causes of accidents. Poor lighting, it has been shown, is a substantial factor in causing industrial injuries.

"Steps are being taken to remedy fundamentally bad conditions, and the results are most encouraging. Pennsylvania provides evidence that appropriate precautionary methods will cut down the number of eye accidents. In that State analysis by the bureau of statistics of the Department of Labor and Industry shows that for three years eye losses have been steadily decreasing in the metal and metal-products industries."

### New Solenoid Brakes

Simplification features a complete new line of solenoid brakes offered by the General Electric Co. The line includes brakes for operation on alternating and direct current, and involves in its construction the use of a spring setting device—a new feature for alternating-current applications. The brakes are especially designed for severe service in connection with mill, crane and hoist motors.

The manufacturer claims smooth operation for making quick stops in either direction of rotation, with a dependable holding value. The brake mechanism is held in the "off" position by a coil and plunger; when power is applied to the motor, the coil is energized and the brake is released. When the power is shut off, the spring setting device forces the mechanism into the closed or braking position.

# CONTENTS

April 5, 1928

Handling of Materials Features Plant Changes .....	929
Pipe Bends Made by New Process .....	933
Why So Much Talk About Safety? .....	935
Cap Screws Made by New Method .....	936
Large Expansion in Electric Drive .....	939
All-Welded Gas Holder Takes 258 Tons .....	941
Treated Fuels Feature Meeting .....	943
Atlantic Seaboard Imports Dominate .....	952
Moderate Gain in March Iron Output .....	964

Studies Special Properties of Wire.....	932
Steel Houses in Germany.....	934
Expansion of Stainless Iron.....	938
Warns Against Quickly Applied Chromium Plating.....	940
Forging and Heat Treating Long Cylinders .....	942
Fellowships at Carnegie Institute.....	944
Deterioration of Lead Cable Sheathing..	947
Simplified Practice in Belgium.....	950
Iron and Steel Shipped by Water...950,	989
Railroad Freight Rates.....	951
Bolivian Tin Hit by Low Prices.....	951
Sorting Non-Ferrous Scrap.....	954
Handicaps in Selling to Japan.....	954
Electric Furnace Iron.....	955
Standard Steel Girder Rails.....	956
Fabrication in Transit.....	957
Eye Conservation in Industry.....	957
Heavy Weirton Steel Output.....	963
Extra Cost of Small Orders.....	963
Aliquippa Furnace Made 30,287 Tons...	965
Canadian Steel Reorganizations.....	977
New Trade Publications.....	998

## MEETINGS

Mid-West Safety Conference.....	935
Association of Iron and Steel Electrical Engineers .....	943
National Metal Trades Association.....	956
Iron, Steel and Tin Workers.....	956
Steel Club of Cleveland.....	956
Association of Waste Material Dealers..	956
Coming Meetings .....	956

## NEW EQUIPMENT

Punch Press Feeds for Nuts.....	945
Automatic Machine to Form Automobile Running Boards .....	945

Band Saw to Cut Soft Metals.....	946
Drill Chuck and Double-End Drills....	946
Combination Punch, Slitting Shear and Bar Cutter .....	947
Gas Producer Fed by New Device.....	948
Open-Side Tool Room Planer.....	948
Wholly Inclosed Arc Welder.....	948
Solenoid Brakes .....	957

## STATISTICAL

By-Product Coke at Higher Rate.....	948
More Employment in Metal Working...	955
Record in Steel Furniture Orders.....	963
Decline in Foundry Equipment Sales...	963
Fewer Freight Cars Ordered.....	965
Rail Production in 1927.....	988
Machinery Exports at Higher Rate.....	989
River Shipments of Iron and Steel....	989
Production of Pig Iron and Ferroalloys in the United States in 1927.....	990

## DEPARTMENTS

European Steel Markets.....	949
Editorial .....	960
Iron and Steel Markets.....	966
Comparison of Prices.....	967
Prices, Raw and Finished Products..969-971	
Non-Ferrous Metals.....	983
Railroad Equipment Buying.....	984
Reinforcing Steel Business.....	984
Structural Awards and Projects.....	985
Personals .....	986
Obituary .....	988
Machinery Markets .....	991

# This Issue in Brief

Employment is gaining in the metal trades. Number of workers on the payroll increased 2.5 per cent in representative firms operating machine shops and foundries. Gain in iron and steel industry was 3.3 per cent.—Page 955.

Many foundries and others could profitably install electric furnaces, bureau official thinks. Electric iron has twice the strength of ordinary cupola iron, and machines more easily. A wider variety of scrap can be used, and where pig iron is expensive and scrap is plentiful the electric furnace is advantageous.—Page 955.

Machinery export business continues to expand. February sales amounted to close to 36 million dollars, a gain of 21 per cent over February, 1927. Gain in first two months over the same period of last year was almost 13 per cent.—Page 989.

Sorters of non-ferrous scrap must have a wide knowledge of metals and commercial practices. Some 250 classifications must be made to get the maximum profit. Classifying is based on knowledge of source, observation of color and shape, and laboratory tests.—Page 954.

Powdered coal installation should have an auxiliary bunker between pulverizer and the burner, so that adjustment and repair of the pulverizer may be made without shutting down the whole equipment. The bunker should carry a supply sufficient to last the burner two or three hours.—Page 944.

Divides heat-treating furnace into three compartments, all heated from the same flame. The top chamber gets the first impact of the flame and the waste heat is passed down into the other two. The chambers are used progressively for pre-heating and heating.—Page 942.

Over two million tons of coke lost annually in the United States by wet quenching, engineer declares. This loss, representing 5 per cent of the production, is said to be largely saved by dry quenching.—Page 943.

Welding cuts fabricating cost of gas holder. A 300,000 cu. ft. capacity holder was made with welded lap joints, bolts at long intervals holding it together during welding.—Page 941.

New process of making pipe bends prevents buckling or thinning. Pipe is placed against a horn-shaped mandrel, then heated in a gas furnace until it becomes plastic, and pushed over the mandrel as fast as it is hot enough to work.—Page 933.

Steel houses of five rooms built in Germany for less than \$2,500. Roof and side walls are made of steel plates with turned rims, so that they may be screwed together. They can be erected in three to four weeks.—Page 934.

Accident liability is twice as great on the street as in the shop, says electrical equipment manufacturer. Western Electric Co. statistics reveal that the automobile has made the factory relatively a far safer place than the highway.—Page 935.

Clean gas is the best possible form of fuel, says professor, because of its molecular construction. Clean oil comes next. Pulverizing largely overcomes the disabilities of coal as ordinarily fed into furnaces.—Page 944.

Danger lies in chromium-plating by rule-of-thumb methods. Slight variations of the chemicals in the solutions, or of any other factor relating to the deposition, create distinct variations in the properties of the plate.—Page 940.

Higher proportion of finished iron and steel exports is going to Pacific Coast. In 1926 the Coast took one-quarter, and in 1927 almost one-third. The Atlantic Coast accounted for 47.7 per cent in 1927 compared with 49.8 per cent in 1926.—Page 952.

If you want Japanese business, don't insist on payment f.a.s. American port, for English and German shippers make more attractive terms—payment on delivery to consumer—and so are favored. Personal representation in Japan is desirable if you wish to cultivate this market.—Page 954.

Damage to enameled parts is prevented by use of special trucks. Stove manufacturer uses a skeleton type of truck, with four corner uprights fixed to the truck floor. The operator mounts a tray on the floor of the truck, fills it with enameled parts, then adds other trays until a truckload is built up.—Page 930.

Tensile strength of cap screws is increased 30 per cent by new extrusion process, says screw manufacturer. As the wire is forced into the die, the portion to be threaded is reduced to the pitch diameter of the thread to be formed, and at the same time the heading operation is performed.—Page 937.

How manufacturers are meeting the small order problem. Among the methods employed are: Decreasing discounts, making a special charge, penalizing salesmen for small orders, and charging larger gross profits.—Page 963.

Gain of 3.2 per cent in March daily pig iron output, which was 103,215 tons. On April 1 there were 197 furnaces in blast, a gain of 10 during the month.—Page 964.



ESTABLISHED 1855

# THE IRON AGE

A. I. FINDLEY, *Editor*

W. W. MACON, *Managing Editor*

Member of the Audit Bureau of Circulations and of  
Associated Business Papers, Inc.

Published every Thursday by the IRON AGE PUBLISHING CO., 239 West 39th Street, New York  
C. S. BAUR, *General Advertising Manager*

F. J. Frank, *President*

George H. Griffiths, *Secretary*

Owned by the United Publishers Corporation, 239 West  
39th Street, New York. A. C. Pearson, *Chairman*. F. J.  
Frank, *Pres.* C. A. Musselman, *Vice-Pres.* Fred O.  
Stevens, *Treas.*

BRANCH OFFICES—Chicago: Otis Building. Pittsburgh:  
Park Building. Boston: 425 Park Square Building. Phila-  
delphia: 1402 Widener Building. Cleveland: 1362 Hanna

Building. Detroit: 7338 Woodward Ave. Cincinnati: 408  
Union Central Building. Buffalo: 835 Ellicott Square.  
Washington: 536 Investment Building. San Francisco: 320  
Market St.

Subscription Price: United States and Possessions, Mexico,  
Cuba, \$6.00; Canada, \$8.50; Foreign, \$12.00 per year.  
Single Copy 25 cents.

Entered as second-class matter, June 18, 1879, at the Post Office at New York, N. Y., under the Act of March 3, 1879.  
PRINTED IN U. S. A.

## Sales and Goods Movement as Gages

VARIOUS classes of statistics have indicated somewhat greater trade in the early part of this year than at the same time in other recent years, but the opinion has been rather widespread that such figures were not a gage of the actual strength of trade. In some lines there was more forward buying than in other years. The Steel Corporation's unfilled tonnage, for instance, increased for five months through February. The October, November and December increases were in line with precedent, while those of January and February contrasted with decreases in the first two months of both 1927 and 1926.

In the circumstances the freight car loadings are consulted with particular interest, since they show the physical movement of product, though by no means its value. Car loadings in the first 11 weeks of the respective years have been as follows:

1924	9,772,232
1925	9,938,159
1926	10,273,480
1927	10,551,127
1928	9,890,593

While this year has run the lowest in four, being merely above 1924, the 6.2 per cent decrease from a year ago must not be taken at face. Early in 1927 there was extra coal movement, consumers accumulating stocks against the expected bituminous strike. The stocks were fairly well held for months afterward, but since the holidays there has been much reduction of stock. Coal loadings, which in the first 11 weeks of 1927 were 2,383,399 cars, fell to 1,898,371 cars in the like period this year. Deducting coal, there was a decrease of only 2.1 per cent this year in loadings of all other commodities. Still, that was a decrease, when normally as the country grows there should be an increase.

If industry as a whole ran at a shade slower pace early this year than last, in some respects it has greater momentum at the present time than a year ago. The steel industry is better supplied

with contracts, on which specifying has been at a very fair rate. Conservative feeling rules in nearly all quarters, but this may be laid to consideration of the stock market and the fact that this is a presidential year, rather than to a feeling that the actual state of trade at the present time is unfavorable.

## Ban the Thin Roofing Sheet

FROM several quarters come reports that galvanized sheets lighter than No. 28 gage are being offered to the public for roofing purposes, despite the efforts of the Sheet Steel Trade Extension Committee and of other bodies to eliminate such sheets from the roofing category. One of the leaders of the movement against the sale of thin galvanized sheets even predicts that the work already done will be nullified unless drastic action is taken.

The original pronouncement of the Sheet Steel Trade Extension Committee, when the campaign for a better galvanized product was taking shape, recommended that "under no circumstances should galvanized sheets lighter than No. 28 gage be used for roofing purposes." "This same recommendation," the committee added, "is made by the Bureau of Standards, Department of Commerce, through its Division of Simplified Practice. Lighter gages are found to be unsatisfactory for roofing purposes. The material is too thin to provide the long life desired in a roof, particularly where climate is severe. When this very thin material is used for roofing in severe climates it frequently reflects discredit on sheet steel roofing in general."

While this declaration was nominally subscribed to by the associated sheet steel manufacturers, some apparently have had neither the foresight nor the courage to put into effect this program. Various makers are producing No. 29 and No. 30 gage galvanized sheets, and in some cases mills are selling No. 29 gage black sheets to galvanizers who themselves do the corrugating and galvanizing. Thus thin-gage galvanized roofing sheets are being offered today without let or hindrance, even though under an official ban of long standing. On the one hand

the Sheet Steel Trade Extension Committee is laboring to extend present markets for sheet steel, while certain manufacturers and jobbers, on the other hand, are defeating its aims by selling an inferior product to the public.

It is well known that in the past few years competition between different industries for the same markets has steadily grown sharper. The sheet steel industry has felt the pressure along with others, meanwhile making an aggressive fight to gain new markets and to retain or regain old ones. In the effort to live down the poor performance of some galvanized roofs of other years the campaign of the trade extension committee has met its chief handicap. It is quite understandable, therefore, that those manufacturers who have conformed to the standards of the committee find ordinary language entirely unequal to the situation created by such makers as have gone back to the discredited practice of four years ago.

### The Over-Supply of Capital

APPARENTLY an anomaly in the economic situation is the abundant supply of capital at a time when it is claimed that the recognized source of capital—earnings—has been drying up. If we can find an explanation for this anomaly or develop that no anomaly exists, we shall have made an important step toward understanding a condition that confuses many.

Two overflows of capital are visible—into the foreign field and into the stock market. As to foreign capital issues, the current Federal Reserve Bulletin reports them, exclusive of refunding operations, as follows:

1926 .....	\$1,052,000,000
1927 .....	1,382,000,000
January, 1928 .....	155,900,000

The amounts themselves are large, being nearly three times for 1926 and more than double for 1927 the amount of our merchandise trade balance. Apart from that, there was a 30 per cent increase from 1926 to 1927, while January of this year was at a rate 35 per cent above the average rate of 1927, though, of course, the single month of January indicates little as to a general rate.

Then there are loans to stock brokers, running about four billions lately, an amount which many opine is "too high," but without suggesting who is really responsible for the desired application of a remedy. Analysis of the sources of the funds shows that it is not to any extent a case of the Federal Reserve banks themselves loaning, but New York banks are loaning their own funds, country banks are sending their funds to New York, and private individuals and corporations are endeavoring to earn something with the cash it is more or less necessary for them to carry.

Thus there is a large, and apparently growing, supply of capital over and above the demand for investment in domestic enterprises outside that of carrying securities in New York. We might say that supply is abnormally large or demand abnormally small, but it is safer to take only one step at a time and say that the relationship is abnormal. Reverting to first principles, the source of capital is

earnings, and we have been accustomed in all the past to see earnings and the demand for capital move more or less together. If an industry was making money it used to expand. In these recent years, however, we have seen much making of money by reduction in cost without large capital expenditure. The automobile industry is an outstanding example.

Viewed in this light, the years since the war are one period, really important differences from year to year having been only in degree. We found ourselves with a commercial machine admittedly too large. Thereupon efforts of individuals and corporations to get along were directed to efficiency, expansion in volume of turnover and reduction in cost, and not to the large expansion of physical equipment and capital investment that used to go naturally with increase in volume of trade.

There is then no real anomaly in capital being abundant when earnings are diminishing. The condition is merely unusual or perhaps unprecedented, growing out of the state of affairs the war left us, calling for improvements in methods of doing the work more than for investing additional capital in tools. The consequences of this long period we must face. There is available capital for new and promising enterprises which we shall now do well to bring forth.

### Prohibition Extends to "Nickel Silver"

SPORADIC thought has been given to devising systematic methods for naming new alloys. Some committees have been organized to study the problem. After canvassing the situation they usually come to the conclusion that nothing much can be done about it and lapse into inactivity. So every inventor chooses some word which strikes his fancy, and if the metal mixture is a commercial success technical literature is enriched by a new word while alloy nomenclature is thereby so much the more confused. Probably the real reason why nothing is done about it is the feeling that the question is quite academic—to those who use Muntz metal, Muntz is just as good a name for 60:40 brass as any other word which might be proposed by the innovators.

Geologists are somewhat more fortunate. By common consent the suffix "ite" denotes a mineral; and whenever a new one is discovered it can be named in a manner satisfactory to everybody. For example, if the discoverer, Mr. Gerstenheimer, wishes to perpetuate his fame he adds the standard suffix to his family name and we have the new mineral "Gerstite." Or Przemyśl, the locality where the rare rock was found, may be chosen for root of the new term, thus: "Przemysite." Or perhaps the mineral has a peculiar and distinctive glitter, and it is fancied that some term describing its appearance will be more suitable than the two former possibilities. Very well; just call it "Glitterite." Any of these will do, so long as it appears on consultation with the alphabetical list in Dana's "Mineralogy" that the desired combination of letters has not already been pre-empted by some predecessor.

But alloy namers have no such simple rules.

In the first place there is no suffix which connotes the fact that the substance named is an alloy. In the second place metallurgists have no comprehensive standard list, giving the commonly accepted names. Thirdly, many alloys have more than one name. And lastly, there is the urge, drawn from commercial considerations, to camouflage a cheap composition with a name suggesting more noble properties.

This last consideration has brought on a situation which ceases to be academic. The Federal Trade Commission recently issued a "cease and desist" order against the use of the name nickel silver by certain jewelry manufacturers, on the complaint of others that the name is misleading and detrimental to silversmiths whose product actually contains silver. This gives rise to a very practical problem: What are the brass manufacturers who make rods, wire, plate and other shapes of copper-nickel and copper-nickel-zinc alloys going to call their product? As a matter of fact it already has been called at least fifty different names (many of them proprietary) like german silver, pack-fong, white copper, argentan and alpakka. The new name must avoid the trademarked terms, but is it to be derived from the name of the inventor or some other metallurgist, from the properties of the alloy, or from the composition?

We believe that the only systematic scheme of nomenclature must rest primarily upon chemical composition. The way is indicated by the Society of Automotive Engineers' system for steels. Steel 1010 is definite as to its essential composition. A  $3\frac{1}{2}$  per cent nickel steel 2335 also means a narrowly restricted composition from which definite physical properties may be expected. Likewise in non-ferrous alloys the term nichrome (were it not patented) approaches the ideal, for it is easy to say and indicates perfectly a member of a particular binary alloy system. It can be made more definite by saying "nichrome 80:20"—obviously denoting an 80 per cent nickel, 20 per cent chromium alloy.

Similar abbreviations could be made for the nickel-copper alloys with or without zinc or tin. All the words nickel, copper, zinc or tin are of Anglo-Saxon or German origin; consequently compounding the syllables into new words would not create any philological monstrosities.

For the purpose of eliciting discussion on the nickel silver question, we propose the term "coppernick 80:20". It is quite definite as to composition; it describes an alloy neatly. Would a manufacturer of german silver fail to recognize what its color and other physical properties would be? One could have as many kinds of coppernicks, ranging from 99:1 to 1:99, as would be found useful, just as we have many kinds of steels. Furthermore, the important ternary alloys containing zinc could be called zinc-coppernicks. Zinc-coppernick 17:65:18 is the American Brass Co.'s 18 per cent nickel silver alloy No. 719.

Admitted that these words sound highly artificial on first striking the ear. Nor do they trip lightly from the tongue. But the same was true of "Socony," "Unedea" and "Prest-o-lite" when

they were first invented, and it has not prevented their widespread and profitable use.

## The Day of the Massive Rail

**H**EAVER steel rails are coming more and more into use to meet conditions imposed by heavier and denser traffic. Rails of 100-pound section and over, rolled in 1927, were more than two-thirds (68.84 per cent) of the year's production of all rails. Only three times previously had the ratio passed one-half: In 1926 it was 61.12 per cent; in 1925, 58.76 per cent; in 1923, 50.47 per cent. In keeping with this rapidly growing proportion of the heavier sections, the decline of 12.78 per cent in total rail production last year was confined almost wholly to rails of under 100 pounds to the yard. The drop in the heavier bracket was only 1.66 per cent.

Recognizing the growing importance of the extra-heavy rail sections, the American Iron and Steel Institute has now made a separate grouping of those rails weighing 120 pounds or over. The total for 1927 is given as 617,524 tons, or 22.01 per cent of all the rails produced last year. This action recalls that of thirteen years ago when for the first time the 100-pound rails were segregated from the 85-pound and over classification, previously the heaviest reported. At that time this new group constituted 27.18 per cent of the year's tonnage.

**I**N its rejection recently of the nomination of John J. Esch for reappointment to the Interstate Commerce Commission the Senate gave an exhibition of politics but little removed from the aldermanic level. What was held against Mr. Esch was that he changed his vote in the long contested Lake cargo case and joined with the majority of the commission in favoring a reduction in coal rates from the Pittsburgh and eastern Ohio districts. Evidence showing changed economic conditions led to the reversal of the first order, which had been favorable to the West Virginia-Kentucky mines. But since this evaluation of economic changes caused a decision that was obnoxious to members of the Senate Committee on Interstate Commerce and their coal mining constituencies, senatorial "courtesy" was invoked for the punishment of the offending commissioner. This legislative coercion of the executive department may come back many times to plague its instigators. But retaliation is poor satisfaction for the injury done to an able public officer.

## Truscon Steel Co. Takes Over Hydraulic Steel Co.

The sale of the East side plant of the Hydraulic Steel Co., Cleveland, to the Truscon Steel Co., Youngstown, for \$1,000,000 was confirmed in the Federal Court in Cleveland, March 31. The court rejected a bid of \$1,525,000 submitted by New York financial interests on the ground that this bid did not offer sufficient safety to creditors. The sale of the property concludes a receivership which began in October, 1923. It is stated that the creditors will receive 34 cents on the dollar.



## EXTRA COST OF SMALL ORDERS

### Effect of Hand-to-Mouth Buying on Distribution Expense Analyzed at Management Meeting

CONTROL of marketing costs was the topic of discussion during four of the six sessions of a conference held by the American Management Association, March 28 to 30, inclusive, at the Palmer House, Chicago. The remaining two sessions, under the auspices of the employees training group, were devoted to the training of salesmen. At a luncheon held on March 29 the effect of the airplane on marketing was reviewed.

An analysis of extra costs resulting from small orders was made by Dr. Leverett S. Lyon, Institute of Economics, in a paper entitled "Keeping Down the Extra Marketing Expenditures That Have Grown Out of Hand-to-Mouth Buying." In his search to determine whether the small order is really a problem and, if so, to what extent it is such, Doctor Lyon sent out a questionnaire to a number of manufacturers. Of 104 replies 79 stated that there has been a growth in the proportion of small orders, while 25 companies, including makers of spark plugs, floor sweepers, alarm clocks and iron foundry products, said that no such increase is apparent in their business.

Over 91 per cent of the companies that acknowledged an increase in the number of small orders felt that the cost of distribution had increased, whereas 9 per cent were of the contrary opinion. Of the 91 per cent, 75 per cent found an increase in the cost of securing orders. A large number of reporting manufacturers stated that the cost of securing orders is due largely to added traveling expenses of salesmen. In some instances this cost had been cut by substituting telephone calls for personal visits by salesmen.

On the subject of office cost the questionnaire was worded so that each manufacturer could take as a working basis what he considered an average large order for his company and for comparison an order one-fifth of that size. Averages of all the replies indicated that recording the small order costs 87 per cent as much as recording the large order, that billing costs 82 per cent as much, granting credit 97 per cent and collecting 102 per cent. In connection with this it was brought out that small orders more often come from doubtful customers, while large orders usually come from good risks.

Averages of replies on proportionate costs of packing, trucking and shipping indicated that the cost of packing the small order was 53 per cent of that of the large order, trucking 52 per cent, and shipping 55 per cent.

Doctor Lyon then applied these percentages as though they represented the products of one company which manufactured all of the lines from which replies had been received. He took as a basis of comparison a large order valued at \$100 and a small order valued at \$20. Taking a hypothetical office cost on the large order of \$4, or 4 per cent of the value of the order, the office expense on the small order was \$3.68, or 18 per cent of the value of the order. Assuming that handling charges on the \$100 order were \$3, or 3 per cent of the value of the order, it was shown that the handling charge on the small order would be \$1.60, or 8 per cent of the value of the order.

Replies to the questionnaire indicated that manufacturers are using the following methods to meet the small order problem:

1. Decreasing discount or increasing price on small orders.
2. Special charge for handling small orders.
3. Offering or soliciting a more varied line.
4. Change in methods of sales force in solicitation.
5. Educating trade to desirability of larger orders.
6. Penalizing salesmen for small orders.
7. Deferred dating plans.
8. Refusal to handle small orders.
9. Charging larger gross profit.
10. Use of branches and warehouses.
11. Concentrating trade with jobbers and wholesalers.
12. New policies which aid small-order buying, such as extending discounts, carrying large stocks and offering contracts against which specifications can be issued as required.

13. Special cooperation with dealers, helping them to keep inventories as low as possible, thus assisting in making turnover that much more rapid.

Manufacturers need to know more about the part of gross profit that disappears in the cost of marketing in the opinion of Willard E. Freeland, president, Freeland & Warren, Inc., who delivered a paper on "Objectives and Essentials of Costing Marketing Activities." Mr. Freeland urged a closer study of individual customers to ascertain whether or not it is profitable to do business with them. He also recommended a study of those sales which can be obtained only at high cost. Further attention, he said, should be given to developing markets where sales costs are low rather than to press for business at high cost in territories already well covered.

At the luncheon meeting C. S. Ching, president American Management Association, stated that prosperity is measured by the production and consumption of goods. In late years manufacturers have made rapid strides in methods of production, but they have not yet learned that marketing is one of the most important of business problems. The result of greater output per person in manufacturing means that fewer people are on the payrolls of manufacturers. Unemployment at this time, he said, is not a result of recession of output but of a reduction in the number of people necessary per unit of production. He sounded a note of warning that unemployment may result in shaking public confidence in the efficacy of labor-saving equipment as a means of reducing costs. Open resistance to the further introduction of labor-saving machinery is not an impossibility.

### Another New Record in Steel Furniture Orders

Orders for steel furniture in February are reported by the United States Department of Commerce at \$3,295,861, compared with \$3,248,165 in January. Both figures were new high records for this line. The reports came from 33 manufacturers. Shipments in February, at \$2,908,527, showed an increase of about 7 per cent over January and made the largest total since March, 1927. With the further exception of December, 1926, the shipments were the largest in more than two years. Unfilled orders have been increasing markedly since Dec. 31, at which date they totaled \$1,413,880. At the end of February the total was \$2,389,306, which is much the largest figure in more than two years.

Steel shelving orders in February at \$741,310 showed a drop of less than 4 per cent from January's record-breaking total. Shipments were \$681,999, which is the highest amount since March, 1927. Unfilled orders at the end of February, \$743,376, were the greatest since Oct. 31, 1926.

### Heavy Steel Output by Weirton Company

The Weirton Steel Co., Weirton, W. Va., operated all 11 of its open-hearth furnaces last month and produced 103,576 gross tons of steel. This showing amply supports an estimate made earlier in the year by J. C. Williams, vice-president and general manager of the company, placing its annual capacity at 1,050,000 tons. The March output was at an annual rate of 1,242,912 tons. The company has more than doubled its capacity in three years, as in 1925 it stood at 570,000 tons annually.

### Decline in Foundry Equipment Orders

Members of the Foundry Equipment Manufacturers' Association received orders in February amounting to 123.6 per cent of the average monthly shipments of 1922 to 1924. This is a reduction from January, when 132.7 per cent was reported, but otherwise it is the largest total since last June. Shipments are reported at 110.6 per cent and unfilled orders at 132.9 per cent of the base. The returns are from 18 companies, of which 11 during the base period showed individual sales of more than \$10,000 a month, while the other seven were in the smaller group.

# Moderate Gain in March Iron Output

Daily Rate Increased 3211 Tons or 3.2 Per Cent Over  
February, According to Actual Data—  
Net Gain of 10 Furnaces

RETURNS of actual production of pig iron from practically all furnaces show that the March output expanded more than 3 per cent over that of February. At 103,215 gross tons per day the March rate was 3.2 per cent or 3211 tons larger than the 100,004 tons per day for February. This compares with a gain in February over January of 8 per cent and of January over December of 6.4 per cent.

Total March pig iron output of 3,199,674 tons or 103,215 tons per day for the 31 days compares with 2,900,126 tons or 100,004 tons per day for the 29 days of February. The March production last year was 3,483,362 tons or 112,366 tons per day. As in the case of February, the March daily rate is the smallest for that month since March, 1922.

### Net Gain of 10 Furnaces

Thirteen furnaces were blown in and three were blown out—a net gain of 10. This compares with a net gain of two in February and with 16 in January. Twelve of the 13 furnaces blown in were steel making, six belonging to the Steel Corporation and six to inde-

pendent steel companies. Only one merchant stack was started. The three furnaces shut down were steel making—two Steel Corporation stacks and one independent steel company furnace.

### Capacity Active on April 1

Operating rate of the 197 furnaces active on April 1 is estimated at 104,650 tons per day. This contrasts with the daily operating rate of 100,060 for the 187 furnaces blowing on March 1.

### Manganese Alloy Output

Ferromanganese output in March was 27,912 tons, the largest since the 29,232 tons made last June. Only one company made spiegeleisen last month, but the total cannot be published.

### Furnaces Blown In and Out

During March the following furnaces were blown in: One furnace at the Coatesville plant of the Bethlehem Steel Corporation in the Schuylkill Valley; one Carrie, one Duquesne and one Isabella furnace of the

Daily Rate of Pig Iron Production by Months—Gross Tons

	Steel Works Iron	Merchant* Iron	Total
March, 1927	86,304	26,062	112,366
April	87,930	26,144	114,074
May	84,486	24,899	109,385
June	78,110	24,878	102,988
July	69,778	25,421	95,199
August	71,413	23,660	95,073
September	69,673	22,825	92,498
October	66,991	22,819	89,810
November	64,600	23,679	88,279
December	64,118	22,742	86,860
January, 1928	69,520	23,053	92,573
February	78,444	21,560	100,004
March	83,489	19,726	103,215

\*Includes pig iron made for the market by steel companies.

Pig Iron Production by Districts, Gross Tons

	March (31 days)	Feb. (29 days)	Jan. (31 days)	Dec. (31 days)
New York and Mass.	216,224	204,744	203,715	199,726
Lehigh Valley	80,058	75,394	72,639	74,316
Schuylkill Valley	51,325	44,861	43,946	44,238
Lower Susq. and Lebanon Valleys	33,301	29,387	30,338	32,289
Pittsburgh district	639,693	597,543	582,497	523,875
Shenango Valley	101,946	90,179	77,023	58,982
Western Penna.	101,365	86,725	89,372	92,774
Maryland, and Kentucky	103,857	89,803	94,590	92,981
Wheeling district	133,764	118,108	108,188	114,030
Mahoning Valley	296,491	261,837	247,371	222,572
Central and North- ern Ohio	330,176	294,427	313,697	295,179
Southern Ohio	25,729	24,773	32,480	32,413
Illinois and Indiana	715,439	639,763	608,771	537,892
Mich., Minn., Mo., Wis., Colo. and Utah	139,101	130,586	134,718	140,141
Alabama	223,314	207,108	224,132	227,775
Tennessee	7,891	4,888	6,284	6,572
Total	3,199,674	2,900,126	2,869,761	2,695,755

Daily Average Production of Coke Pig Iron in the United States by Months Since Jan. 1, 1924—Gross Tons

	1924	1925	1926	1927	1928
Jan.	97,384	108,720	106,974	100,123	92,573
Feb.	106,026	114,791	104,408	105,024	100,004
Mar.	111,809	114,975	111,032	112,366	103,215
Apr.	107,781	108,632	115,004	114,074	.....
May	84,358	94,542	112,304	109,385	.....
June	67,541	89,115	107,844	102,988	.....
½ year	95,794	105,039	109,660	107,351	.....
July	57,577	85,936	103,978	95,199	.....
Aug.	60,875	87,241	103,241	95,073	.....
Sept.	68,442	90,873	104,543	92,498	.....
Oct.	79,907	97,528	107,553	89,810	.....
Nov.	83,656	100,767	107,890	88,279	.....
Dec.	95,539	104,853	99,712	86,860	.....
Year	85,075	99,735	107,043	99,266	.....

Coke Furnaces in Blast

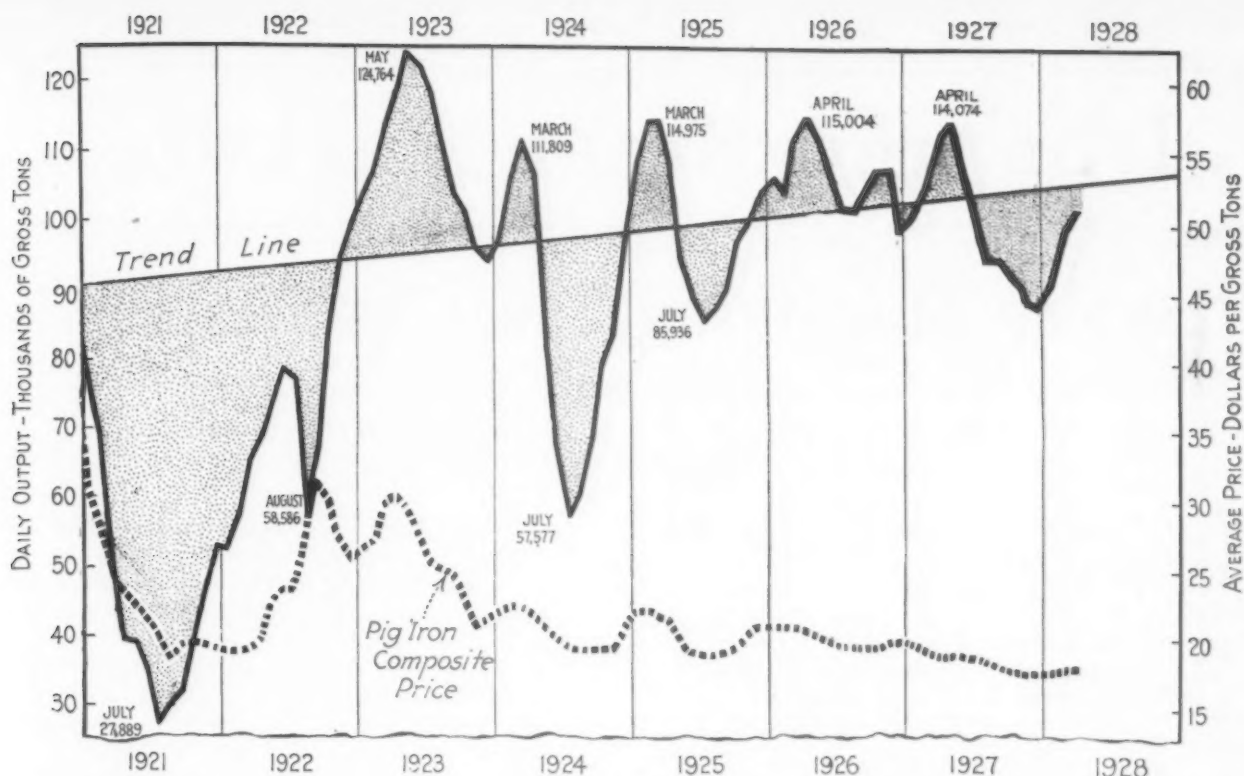
Furnaces	Number in Blast	April 1— Capacity per Day	Number in Blast	March 1— Capacity per Day
New York:				
Buffalo	12	5,720	12	5,910
Other N. Y. and Mass.	3	1,230	3	1,150
New Jersey	0	.....	0	.....
Pennsylvania:				
Lehigh Valley	5	2,600*	5	2,600*
Schuylkill Valley	5	1,820	4	1,545
Susquehanna Valley	2	1,015	2	945
Ferromanganese	1	60	1	65
Lebanon Valley	0	.....	0	.....
Ferromanganese	0	.....	0	.....
Pittsburgh District	35	21,560	33	20,550
Ferro. and Spiegel	2	350	1	240
Shenango Valley	6	3,290	6	3,100
Western Pennsylvania	6	2,900	5	2,580
Ferromanganese	2	430	2	420
Maryland	6	3,045	5	2,500
Wheeling District	7	4,315	7	4,200
Ohio:				
Mahoning Valley	17	10,000	15	9,030
Central and Northern	18	10,300	17	9,830
Southern	3	830	3	865
Illinois and Indiana	35	23,070	35	22,270
Mich., Wis. and Minn.	6	2,745	6	2,770
Colo., Mo. and Utah	4	1,745	4	1,600*
The South:				
Virginia	1	215	1	225
Kentucky	1	380	1	370
Alabama	17	7,140	17	6,840
Ferromanganese	1	70	0	.....
Tennessee	2	250	2	465
Total	197	104,650	187	100,060

\*Includes spiegeleisen.

Production of Coke Pig Iron in United States by Months, Beginning Jan. 1, 1926—Gross Tons

	1926	1927	1928
Jan.	3,316,201	3,103,820	2,869,761
Feb.	2,923,415	2,940,679	2,900,126
Mar.	3,441,986	3,483,362	3,199,674
Apr.	3,450,122	3,422,226	.....
May	3,481,428	3,390,940	.....
June	3,235,309	3,089,651	.....
½ year	19,848,461	19,430,678	.....
July	3,223,338	2,951,160	.....
Aug.	3,200,479	2,947,276	.....
Sept.	3,136,293	2,774,949	.....
Oct.	3,334,132	2,784,112	.....
Nov.	3,236,707	2,648,376	.....
Dec.	3,091,060	2,695,755	.....
Year*	39,070,470	36,232,306	.....

\*These totals do not include charcoal pig iron. The 1926 production of this iron was 163,880 tons.



Daily Pig Iron Output in March Was 3.2 Per Cent More Than in February; Composite Price Increases Slightly

Inclined line represents the gradually increasing theoretical needs of the country, and shows that production is now below the so-called normal. Dotted line represents THE IRON AGE composite price

Carnegie Steel Co. and one Eliza furnace of the Jones & Laughlin Steel Corporation in the Pittsburgh district; the Perry furnace in western Pennsylvania; one furnace at the Sparrows Point plant of the Bethlehem Steel Corporation in Maryland; two furnaces of the Youngstown Sheet & Tube Co. in the Mahoning Valley; one furnace of the American Steel & Wire Co. and the United furnace of the Central Iron & Steel Corporation in northern Ohio; one Gary furnace in the Chicago district and one Bessemer furnace of the Tennessee Coal, Iron & Railroad Co. in Alabama.

During March the following furnaces were blown out or banked: One Carrie furnace of the Carnegie Steel Co. in the Pittsburgh district; one furnace of the American Rolling Mill Co. in central Ohio, and one Gary furnace in the Chicago district.

#### Possibly Active Furnaces Reduced

The Leesport Furnace of the Leesport Furnace & Foundry Co. in the Schuylkill Valley and the Lochiel furnace of the Central Iron & Steel Co. in the Lower Susquehanna Valley are being dismantled. This reduces the number of possibly active blast furnaces in the United States from 349 to 347.

#### Production of Steel Companies for Own Use—Gross Tons

	Total Iron Spiegel and Ferro		Spiegeleisen and Ferromanganese*			
	1927	1928	1927		1928	
			Fe-Mn	Spiegel	Fe-Mn	Spiegel
Jan. . . .	2,343,881	2,155,133	31,844	7,486	22,298	† . . .
Feb. . . .	2,256,651	2,274,880	24,560	7,045	19,320	† . . .
Mar. . . .	2,675,417	2,588,158	27,834	7,650	27,912	. . .
Apr. . . .	2,637,919	. . . . .	24,735	12,907	. . .	. . .
May . . .	2,619,078	. . . . .	28,734	9,788	. . .	. . .
June . . .	2,343,409	. . . . .	29,232	10,535	. . .	. . .
½ year. .	14,876,355	. . . . .	166,939	55,411	. . .	. . .
July . . .	2,163,101	. . . . .	26,394	9,350	. . .	. . .
Aug. . . .	2,213,815	. . . . .	21,279	9,104	. . .	. . .
Sept. . .	2,090,200	. . . . .	20,675	6,037	. . .	. . .
Oct. . . .	2,076,722	. . . . .	17,710	6,129	. . .	. . .
Nov. . . .	1,938,043	. . . . .	17,851	6,521	. . .	. . .
Dec. . . .	1,987,652	. . . . .	20,992	6,816	. . .	. . .
Year. . .	27,345,888	. . . . .	291,840	99,368	. . .	. . .

\*Includes output of merchant furnaces.

†Data not available.

#### No. 5 Aliquippa Furnace Made 30,287 Tons of Pig Iron in March

The performance of No. 2 Aliquippa furnace of the Jones & Laughlin Steel Corporation, which in the year ended Dec. 31, last, produced 285,148 tons of pig iron, or an average of slightly more than 781 tons daily is being considerably improved upon by No. 5 furnace of the same group. Since it was blown in on Aug. 1, 1927, this furnace has been averaging about 900 tons daily and last month produced 30,287 tons, a daily average of 977 tons. During the last 10 days of the month this furnace produced 10,381 tons, an average of 1038 tons daily, and twice during the month it produced more than 1100 in one day, making 1135 tons one day and 1185 tons on another.

The month's total production of the furnace, its daily average and the output of one day of 1185 tons, are all said to be American high records for a furnace running on ore, plus its own scrap. About two years ago, one of the Carrie furnaces of the Carnegie Steel Co., produced 1263 tons, but the burden contained a substantial amount of scrap other than that produced in the furnace. The Jones & Laughlin corporation will soon start rebuilding its No. 4 Aliquippa furnace and so change its lines to insure a daily output of 1200 tons of pig iron.

#### Decline in Freight Cars Installed and Ordered

Class I railroads in the first two months of this year installed 6032 freight cars, compared with 10,621 for the same period in 1927 and 12,817 for the corresponding months in 1926. On March 1 the railroads had 21,726 freight cars on order, compared with 29,395 on the same date last year and 50,947 on March 1, 1926.

Locomotives installed in the first two months of 1928 totaled 325, an increase of 20 compared with the corresponding period of last year, but a decrease of 41 compared with the same period in 1926. Locomotives on order March 1 totaled 171, compared with 276 on the same date last year.



# Iron and Steel Markets

## Heavy Specifying Steadies Market

Large Orders Against Expiring Steel Contracts Insure Continuance of Heavy Output—Net Gain of 10 Blast Furnaces in March  
—No Increase in Price Irregularities—Steel Pipe Advanced

**H** EAVY specifications against expiring steel contracts, a rate of production that is still on an ascending scale and a price situation that is holding its own, barring minor irregularities, mark the opening of the second quarter of the year.

Blast furnace returns for March collected by THE IRON AGE show a net gain of 10 stacks, of which nine were steel company furnaces. This reflects a sharp increase in steel works activity and lends support to the belief that ingot production for March exceeded the high record made in the same month last year. Merely assuming that the March rate was equal to that of February, output for the first quarter surpassed that of the same period last year by nearly 200,000 tons. Since the March rate actually gained, final returns for the quarter will show a total closely approaching, if not larger than, the record made in the first quarter of 1926.

Steel production in April, it is conceded, may recede from the March rate, but there are no indications of as sharp a decline as occurred in April, 1927. Shipping orders placed in the last week of March were large enough to insure a sustained output until the middle of the month. At no time during the first quarter, with its high rate of plant engagement, have producers been able to look much further ahead.

Unquestionably the large volume of specifications against contracts that expired March 31 has had a steadying effect on prices. In some cases buyers were successful in overspecifying their contracts and in other instances mills have continued to accept shipping orders, not choosing to enforce the cancellation clause, but as a rule producers added excess tonnage to second quarter contracts and canceled tonnage that remained unspecified at the end of the month.

Buying at second quarter prices has not yet reached important proportions, but since shipments against first quarter contracts will continue through most of this month, consumers do not find it necessary to place much additional tonnage at this time. There continue to be price irregularities in wire nails and some finishes of sheets, but they are no more numerous, and possibly fewer, than a week ago. Meanwhile, mills are showing more of a disposition to ignore price concessions, some of which emanate from middlemen and are possibly of a transient character. At any rate, the week has seen another postponement of serious tests of the price structure.

The only important new development in steel prices during the week was an advance in standard steel pipe. This took the form of a withdrawal of a preferential discount of 5 per cent which had been in effect since Oct. 1, 1927.

Among the leading consuming lines, the automobile industry, building construction and farm implement manufacturing continue to take steel at an undiminished rate. Reports indicate heavy sales by dealers in low-priced automobiles, but a less promising movement of some of the medium and high-priced cars. An expected increase in Ford production this quarter will, if it materializes, tend to counterbalance a possible decline in the output of other motor car builders. Automobile makers are still cautious in buying steel, committing themselves only for a few weeks ahead.

Structural lettings of 46,000 tons include 18,000 tons for a bridge across the Ohio River at Louisville, 7800 tons for a section of the New York subway and 4300 tons for a store building at Oakland, Cal. New projects call for 20,800 tons, of which 5000 tons is for a Pennsylvania Railroad bridge at Newark, N. J.

Railroad buying was featured by the purchase of 300 refrigerator cars by the North American Car Corporation and 260 ballast cars by the Canadian National. Inquiries include 500 flat and 50 gondola cars for the Southern Pacific and 500 tank cars for the North American Car Corporation.

The extent of the recent large buying of pig iron in the Central West is shown by the fact that second quarter sales at Chicago were larger than for any three-month period in several years. At Cleveland the market has resumed its recent activity with sales of 65,000 tons in the week. Other districts are less busy. Through arrangements now being perfected Buffalo iron will move by barge or by water and rail to New England and to points in the eastern Pennsylvania district at delivered prices low enough to prove serious competition for other Eastern producers.

Details of pig iron output in March show a total of 3,199,674 tons produced, or 103,215 tons per day, against 2,900,126 tons, or 100,004 tons in February. The daily rate was the smallest for any March since 1922. Reflecting a larger use of scrap in steel making and a poorer showing by merchant furnaces, pig iron production in the first three months of 1928, at 8,969,561 tons, was the smallest for any first quarter since 1922.

Quotations on 440,000 tons of Lake Superior ore for the Ford Motor Co. were identical with last year's prices, indicating their probable reestablishment for the coming season.

Sales of copper in March, estimated at 160,000 tons, were the second largest since the war. The record was over 220,000 tons in December, 1919.

Both of THE IRON AGE composite prices remain unchanged at last week's levels, that for pig iron at \$17.67 a ton and that for finished steel at 2.357c. a lb.

# A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics  
At Date, One Week, One Month, and One Year Previous

Pig Iron, Per Gross Ton:	Apr. 3, 1928	Mar. 27, 1928	Mar. 6, 1928	Apr. 5, 1927
No. 2, fdy., Philadelphia	\$20.76	\$20.76	\$20.76	\$21.76
No. 2, Valley furnace	17.25	17.25	17.25	18.50
No. 2, Southern, Cin'tl.	19.69	19.69	19.69	21.69
No. 2, Birmingham	16.00	16.00	16.00	18.00
No. 2 foundry, Chicago*	18.50	18.50	18.50	20.00
Basic, del'd eastern Pa.	19.50	19.50	19.50	20.75
Basic, Valley furnace	17.00	17.00	17.00	19.00
Valley Bessemer, del'd P'gh	19.26	19.26	19.26	21.26
Malleable, Chicago*	18.50	18.50	18.50	20.00
Malleable, Valley	17.25	17.25	17.25	18.50
Gray forge, Pittsburgh	18.51	18.51	18.51	19.76
L. S. charcoal, Chicago	27.04	27.04	27.04	27.04
Ferromanganese, furnace	100.00	100.00	100.00	100.00

Rails, Billets, etc., Per Gross Ton:	Apr. 3, 1928	Mar. 27, 1928	Mar. 6, 1928	Apr. 5, 1927
O.-h. rails, heavy, at mill	\$43.00	\$43.00	\$43.00	\$43.00
Light rails at mill	36.00	36.00	36.00	36.00
Bess. billets, Pittsburgh	33.00	33.00	33.00	34.00
O.-h. billets, Pittsburgh	33.00	33.00	33.00	34.00
O.-h. sheet bars, P'gh	34.00	34.00	34.00	34.00
Forging billets, P'gh	38.00	38.00	38.00	40.00
O.-h. billets, Phila.	38.30	38.30	38.30	39.30
Wire rods, Pittsburgh	44.00	44.00	44.00	43.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb.	1.85	1.85	1.85	1.90

Finished Iron and Steel,	Apr. 3, 1928	Mar. 27, 1928	Mar. 6, 1928	Apr. 5, 1927
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.12	2.12	2.12	2.12
Iron bars, Chicago	2.00	2.00	1.90	2.00
Steel bars, Pittsburgh	1.85	1.85	1.85	1.90
Steel bars, Chicago	2.00	2.00	1.95	2.00
Steel bars, New York	2.19	2.19	2.19	2.24
Tank plates, Pittsburgh	1.85	1.85	1.85	1.85
Tank plates, Chicago	2.00	2.00	1.95	2.00
Tank plates, New York	2.17½	2.17½	2.17½	2.19
Beams, Pittsburgh	1.85	1.85	1.85	1.90
Beams, Chicago	2.00	2.00	1.95	2.00
Beams, New York	2.14½	2.14½	2.14½	2.19
Steel hoops, Pittsburgh	2.20	2.20	2.20	2.30

\*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

Sheets, Nails and Wire,	Apr. 3, 1928	Mar. 27, 1928	Mar. 6, 1928	Apr. 5, 1927
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 24, P'gh	2.85	2.85	2.90	2.75
Sheets, black, No. 24, Chi-				
cago dist. mill	3.00	3.00	3.00	2.95
Sheets, galv., No. 24, P'gh	3.65	3.65	3.65	3.65
Sheets, galv., No. 24, Chi-				
cago dist. mill	3.85	3.85	3.85	3.85
Sheets, blue, 9 & 10, P'gh	2.10	2.10	2.10	2.20
Sheets, blue, 9 & 10, Chi-				
cago dist. mill	2.20	2.20	2.20	2.35
Wire nails, Pittsburgh	2.65	2.65	2.65	2.55
Wire nails, Chicago dist.				
mill	2.70	2.70	2.70	2.60
Plain wire, Pittsburgh	2.50	2.50	2.50	2.40
Plain wire, Chicago dist.				
mill	2.55	2.55	2.55	2.45
Barbed wire, galv., P'gh	3.35	3.35	3.35	3.25
Barbed wire, galv., Chi-				
cago dist. mill	3.40	3.40	3.40	3.30
Tin plate, 100 lb. box, P'gh	\$5.25	\$5.25	\$5.25	\$5.50

Old Material, Per Gross Ton:	Apr. 3, 1928	Mar. 27, 1928	Mar. 6, 1928	Apr. 5, 1927
Heavy melting steel, P'gh	\$15.00	\$15.00	\$14.75	\$16.75
Heavy melting steel, Phila.	13.50	13.50	13.50	14.50
Heavy melting steel, Ch'go	12.50	12.50	12.75	13.25
Carwheels, Chicago	13.50	13.50	14.00	15.25
Carwheels, Philadelphia	15.50	15.50	15.50	16.00
No. 1 cast, Pittsburgh	14.50	14.50	14.50	16.00
No. 1 cast, Philadelphia	16.00	16.00	16.00	17.00
No. 1 cast, Ch'go (net ton)	14.50	14.50	14.50	16.50
No. 1 RR. wrot, Phila.	15.00	15.00	15.00	16.50
No. 1 RR. wrot, Ch'go (net)	11.00	11.00	11.00	12.50

Coke, Connellsville, Per Net Ton at Oven:	Apr. 3, 1928	Mar. 27, 1928	Mar. 6, 1928	Apr. 5, 1927
Furnace coke, prompt	\$2.60	\$2.60	\$2.60	\$3.25
Foundry coke, prompt	3.75	3.75	3.75	4.25

Metals,	Apr. 3, 1928	Mar. 27, 1928	Mar. 6, 1928	Apr. 5, 1927
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	14.30	14.20	14.25	13.25
Electrolytic copper, refinery	14.12½	14.00	14.00	12.87½
Zinc, St. Louis	5.72½	5.72½	5.50	6.55
Zinc, New York	6.07½	5.85	5.85	6.90
Lead, St. Louis	5.95	5.82½	5.75	7.00
Lead, New York	6.10	6.00	6.00	7.25
Tin (Straits), New York	53.50	52.75	51.62½	69.75
Antimony (Asiatic), N. Y.	9.50	10.00	10.25	13.50

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

## Pittsburgh

### Steadier Price Situation on Steel Products —Flow of Orders Undiminished

PITTSBURGH, April 3.—The second quarter of the year opens with considerably less uncertainty as to prices than existed during most of the past month. Producers seem to have been a good deal more concerned than now appears to have been warranted over what would happen when the higher prices they have been seeking were tested. While the extreme advances have not been attained, and there have been a good many cases involving sizable tonnages where buyers will continue to enjoy the low prices of the first quarter for another month or so, it is equally clear that second quarter contracts will average higher in price than those for the quarter just ended.

Hot-rolled strip steel makers have yielded little of the advance they sought even to the largest tonnage buyers and much of the tonnage booked is at the full quotations. Makers of wire products seem more disposed to wait buyers out than to force the issue, feeling that the chances of success in getting present prices will be better when the real requirements are present. While admitting weakness in galvanized sheets and that it has been impossible to hold the market on tin mill black plate at 3c. base, sheet makers are firm on other finishes and insist that prices below regular quotations on black sheets are concessions rather than straight out cuts. Current shipments of plates, shapes and bars include much tonnage carrying a price of 1.80c., base Pittsburgh, but manufacturers generally ask 1.85c. on new business and there is no

evidence that less is being done. An interesting price development of the week was the announcement made April 2 of a withdrawal of the preferential of 5 per cent that steel pipe makers have been giving on standard pipe since Oct. 1.

The steadier price situation is associated with the fact that the steel industry steps from the first into the second quarter with no appreciable letdown in the flow of orders, and while the prospect is that April will show a smaller production than March, which incidentally is believed to have beaten the record of the same month last year, evidence is lacking that there will be any such tapering in output as marked April last year. The last week of March produced enough business in the aggregate to insure sustained ingot production until about the middle of this month, which really is as far ahead as the producers could look at any time during the first quarter with its high rate of plant engagement.

It may be necessary to revise upward the potential steel making capacity of the country if the March performance of the Weirton Steel Co. is a criterion, and in pig iron if the output of one of the Jones & Laughlin Steel Corporation furnaces is a true measure of what modern blast furnaces can do.

The primary materials still are out of step with finished steel in point of sales and to a considerable extent in the matter of prices. Open-hearth grades of scrap are not plentiful and prices are firm, but this merely emphasizes a generally opposite condition in other grades. Pig iron producers believe they have seen their lowest prices, but the activity necessary to strengthen them is lacking. The fuel market is very dull and prices are soft.

Pig Iron.—One good sized sale of No. 3 foundry

iron stands out in an otherwise quiet market. This sale, amounting to about 5000 tons, is reported to have been at slightly more than the regular price of \$16.75, Valley furnace, but hardly establishes the market at a higher level in view of the fact that the sale was tied up with a coke deal. It develops positively that a recent large sale of basic and a smaller sale of Bessemer iron were by a steel company to another steel company and that the iron did not come from a Valley furnace. One good sized sale of Valley basic iron, from 2000 to 4000 tons, is noted at a price well under what has been nominally quoted for some time, but the transaction proves to have been substantially an inter-company deal and hardly is recognizable as establishing a lower general market. The seller says that iron would not have been sold at the price at which this lot was moved to other than the company which bought. Valley producers are taking a firmer stand on basic iron, as it develops that they have less reason to fear competition from Pittsburgh district steel companies which either are sold up or have no iron for sale. The Jones & Laughlin Steel Corporation added a furnace in the past week at its Aliquippa Works and now has all five there in production. W. P. Snyder & Co. make the March average prices of Valley basic and Bessemer iron \$17 and \$17.50, the same as in February.

*Prices per gross ton, f.o.b. Valley furnace:*

Basic .....	\$17.00
Bessemer .....	17.50
Gray forge .....	16.75
No. 2 foundry .....	17.25
No. 3 foundry .....	16.75
Malleable .....	17.25
Low phosphorus, copper free .....	27.00

Freight rate to the Pittsburgh or Cleveland district, \$1.76.

**Ferroalloys.**—One sale of 200 tons of British ferromanganese for second quarter shipment is noted at the regular market price. Generally, consumers are covered through the first half of the year and new business is infrequent and for small lots. Specifications on contracts are active not only in that alloy, but in ferrosilicon and spiegeleisen. Tonnage releases in the latter are exceeding quotas and the use of it is much wider than in recent years.

**Fluorspar.**—Leading domestic producers have withdrawn all prices below \$15 per net ton at mines for gravel spar analyzing 85 per cent calcium fluoride and not over 5 per cent silica and are expected to announce higher prices soon. All producers have a good deal of business on their books taken at \$14.50.

**Semi-Finished Steel.**—Good operations by sheet, tin plate and strip manufacturers who buy their steel are reflected in a well sustained movement of billets, slabs and sheet bars, but there is little or no open market activity, as shipments are almost entirely on standing contracts between producers and consumers. The quoted prices are unchanged. The present price of wire rods is yet to come into full play, as consumers had until the end of March to enter specifications on first quarter contracts written at \$40 and appear to have secured their requirements for this month at least.

**Bars, Plates and Shapes.**—The last week of March

was a good one for local companies in specifications, with a good many buyers attempting to overspecify against expiring first quarter contracts. Some makers appear to have accepted the extra tonnage, but others either cancelled the amount beyond the quota or added it to second quarter contracts, carrying an advance of \$1 a ton over first quarter contracts. The price situation is without change. Much of the contract tonnage moving from the mills this month will be at the first quarter price of 1.80c., base Pittsburgh, with a smaller amount at the second quarter price of 1.85c. Small lots of all three products have gone at 1.90c., base, but the prevailing contract tonnage price for this quarter is 1.85c. Considerable tonnage of plates will be required for the river barges lately closed and now pending, and 50,000 to 100,000 tons will be wanted for the Amarillo, Tex.-Kansas City gas pipe line, which is believed to be nearing the mills. Bolt and nut makers are taking bars very steadily, but demands from makers of cold-finished bars are not as heavy as they were earlier in the year. Structural steel lettings in this area still are moderate.

**Rails and Track Supplies.**—A heavy movement of standard-section rails and track supplies is noted against old contracts, but new business is light. Continued depression in the coal industry is limiting purchases of light-section rails and of small spikes.

**Wire Products.**—Prices announced as of Jan. 26, last, or \$2.65, base, per keg, Pittsburgh, for nails and \$2.50, base, per 100 lb. for plain wire, are still to be seriously tested. Buyers had until the end of last month to specify on first quarter contracts carrying prices \$2 per ton lower and appear to have exercised the privilege in wire and to the extent of their needs in nails. Because they took heavy deliveries during the quarter just ended on nails bought at lower prices last December, and the movement into consumption has been rather light, some jobbers could not provide specifications on first quarter contracts at \$2.55, base. In such cases there is an impasse on prices, with the mills insisting that the time has passed for specifications on \$2.55 contracts and jobbers equally firm in demanding that the price be extended until they can lighten their stocks.

**Tubular Goods.**—The Youngstown Sheet & Tube Co. has announced, effective April 2, the withdrawal of the 5 per cent preferential which has been quoted since the fourth quarter of last year on standard steel pipe, making the price base and 5 per cent. The announcement says that the change also affects other classes of steel pipe, including line pipe, water well casing, etc. It is expected that similar action will be taken by other steel pipe producers. The market has been unsettled on standard pipe since Oct. 1 last, when the discounts were increased by an extra 5 per cent to bring quotations in line with actual selling prices and there have been a good many cases where the supplementary and preferential discounts amounted to three fives. Neither jobbers nor mills have made money and this step is said to have been prompted by a desire for stability on the part of both. There is a steady movement of stand-

## THE IRON AGE Composite Prices

### Finished Steel April 3, 1928, 2.357c. a Lb.

One week ago .....	2.357c.
One month ago .....	2.364c.
One year ago .....	2.367c.
10-year pre-war average .....	1.689c.

Based on steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 86 per cent of the United States output of finished steel.

High		Low	
1928	2.364c., Feb. 14.	2.314c., Jan. 3	
1927	2.453c., Jan. 4.	2.293c., Oct. 25	
1926	2.453c., Jan. 5.	2.403c., May 18	
1925	2.560c., Jan. 6.	2.396c., Aug. 18	
1924	2.789c., Jan. 15.	2.460c., Oct. 14	
1923	2.824c., Apr. 24.	2.446c., Jan. 2	

### Pig Iron April 3, 1928, \$17.67 a Gross Ton

One week ago .....	\$17.67
One month ago .....	17.75
One year ago .....	19.21
10-year pre-war average .....	15.72

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

High		Low	
1928	\$17.75, Feb. 14.	\$17.54, Jan. 3	
1927	19.71, Jan. 4.	17.54, Nov. 1	
1926	21.54, Jan. 5.	19.46, July 13	
1925	22.50, Jan. 13.	18.96, July 7	
1924	22.88, Feb. 26.	19.21, Nov. 3	
1923	30.86, Mar. 20.	20.77, Nov. 20	



# Mill Prices of Finished Iron and Steel Products

## Iron and Steel Bars

### Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mill.....	1.85c. to 1.90c.
F.o.b. Chicago .....	2.00c.
Del'd Philadelphia .....	2.17c. to 2.22c.
Del'd New York.....	2.19c. to 2.24c.
Del'd Cleveland .....	2.04c. to 2.09c.
F.o.b. Cleveland .....	1.85c.
F.o.b. Lackawanna .....	1.95c.
F.o.b. Birmingham .....	2.05c. to 2.15c.
C.i.f. Pacific ports .....	2.35c.
F.o.b. San Francisco mills.....	2.35c. to 2.40c.

### Billet Steel Reinforcing

F.o.b. Pittsburgh mills.....	1.90c. to 2.00c.
F.o.b. Birmingham .....	2.05c. to 2.15c.

### Rail Steel

F.o.b. mills east of Chicago district.....	1.75c.
F.o.b. Chicago Heights mill.....	1.80c. to 1.85c.

### Iron

Common iron, f.o.b. Chicago.....	2.00c.
Refined iron, f.o.b. P'gh mills.....	2.75c.
Common iron, del'd Philadelphia.....	2.12c.
Common iron, del'd New York.....	2.14c.

## Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mills.....	1.85c. to 1.90c.
F.o.b. Chicago .....	2.00c.
F.o.b. Birmingham .....	2.05c. to 2.15c.
Del'd Cleveland .....	2.04c. to 2.09c.
Del'd Philadelphia .....	2.10c. to 2.15c.
F.o.b. Coatesville .....	2.00c. to 2.05c.
F.o.b. Sparrows Point .....	2.00c.
F.o.b. Lackawanna .....	1.95c.
Del'd New York .....	2.17½c. to 2.22½c.
C.i.f. Pacific ports .....	2.30c.

## Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mills.....	1.85c. to 1.90c.
F.o.b. Chicago .....	2.00c.
F.o.b. Birmingham .....	2.05c. to 2.15c.
F.o.b. Lackawanna .....	1.95c.
F.o.b. Bethlehem .....	2.00c.
Del'd Cleveland .....	2.04c. to 2.09c.
Del'd Philadelphia .....	2.12c. to 2.18c.
Del'd New York .....	2.14½c. to 2.19½c.
C.i.f. Pacific ports .....	2.35c.

## Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
Narrower than 3 in., P'gh.....	2.20c. to 2.40c.
Wider than 3 in. to 6 in., P'gh.....	2.10c. to 2.20c.
6 in. and wider, P'gh.....	1.90c. to 2.00c.
Narrower than 3 in., Chicago.....	2.30c. to 2.50c.
From 3 to 6 in., Chicago.....	2.20c. to 2.30c.
6 in. and wider, Chicago.....	2.00c. to 2.10c.

\*Mills follow plate or sheet prices according to gage on wider than 12 in.

## Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills.....	2.20c.
Bars, f.o.b. Chicago.....	2.10c. to 2.20c.
Bars, Cleveland .....	2.25c.
Shafting, ground, f.o.b. mill.....	*2.45c. to 2.90c.
Strips, under 12 in., 1 up to 3 tons, P'gh.....	3.00c. to 3.15c.
Strips, under 12 in., 1 up to 3 tons, Cleveland .....	3.00c. to 3.15c.
Strips, under 12 in., 1 up to 3 tons, del'd Chicago .....	3.30c. to 3.45c.
Strips, under 12 in., 1 up to 3 tons, Worcester .....	3.15c. to 3.30c.

\*According to size.

## Wire Products

(To jobbers in car lots, f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails .....	\$2.65
Galvanized nails .....	4.65
Galvanized staples .....	3.35
Polished staples .....	3.10
Cement coated nails .....	2.65

	Base Per 100 Lb.
Bright plain wire, No. 9 gage.....	\$2.50
Annealed fence wire .....	2.65
Spring wire .....	3.50
Galv'd wire, No. 9.....	3.10
Barbed wire, gal'd.....	3.35
Barbed wire, painted.....	3.10

Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester, Mass., (wire) mill \$3 a ton higher on production of that plant; Duluth, Minn., mill \$2 a ton higher; Anderson, Ind., \$1 higher.

## Woven Wire Fence

### Base to Retailers Per Net Ton

F.o.b. Pittsburgh .....	\$65.00
F.o.b. Cleveland .....	66.00
F.o.b. Anderson, Ind. ....	66.00
F.o.b. Chicago district mills.....	67.00
F.o.b. Duluth .....	68.00
F.o.b. Birmingham .....	68.00

## Sheets

### Blue Annealed

#### Base Per Lb.

Nos. 9 and 10, f.o.b. P'gh—wider than 40 in. ....	2.20c.
Nos. 9 and 10, f.o.b. P'gh—40 in. and narrower .....	2.10c.
Nos. 9 and 10, f.o.b. Chicago dist. mill.....	2.20c. to 2.30c.
Nos. 9 and 10, del'd Cleveland.....	2.29c.
Nos. 9 and 10, del'd Philadelphia.....	2.42c. to 2.52c.
Nos. 9 and 10, f.o.b. Birmingham.....	2.25c. to 2.30c.

### Box Annealed, One Pass Cold Rolled

No. 24, f.o.b. Pittsburgh.....	2.80c. to 2.90c.
No. 24, f.o.b. Chicago dist. mill.....	3.00c.
No. 24, del'd Cleveland.....	2.94c. to 3.09c.
No. 24, del'd Philadelphia.....	3.22c.
No. 24, f.o.b. Birmingham .....	3.05c.

## Metal Furniture Sheets

No. 24, f.o.b. Pittsburgh, A grade.....	3.95c. to 4.05c.
No. 24, f.o.b. Pittsburgh, B grade.....	3.75c. to 3.85c.

## Galvanized

No. 24, f.o.b. Pittsburgh .....	3.65c. to 3.75c.
No. 24, f.o.b. Chicago dist. mill.....	3.85c.
No. 24, del'd Cleveland.....	3.74c. to 3.94c.
No. 24, del'd Philadelphia.....	4.07c.
No. 24, f.o.b. Birmingham .....	3.90c.

## Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh.....	2.90c. to 3.00c.
No. 28, f.o.b. Chicago dist. mill.....	3.10c.

## Automobile Body Sheets

No. 20, f.o.b. Pittsburgh .....	4.15c.
---------------------------------	--------

## Long Ternes

No. 24, 8-lb. coating, f.o.b. mill primes.....	4.10c.
--	--------

## Tin Plate

### Per Base Box

Standard cokes, f.o.b. P'gh district mills.....	\$5.25
Standard cokes, f.o.b. Gary.....	5.35

## Terne Plate

(F.o.b. Morgantown or Pittsburgh)  
(Per package, 20 x 28 in.)

8-lb. coating I.C.\$11.20	25-lb. coating I.C.\$16.70
15-lb. coating I.C. 14.00	30-lb. coating I.C. 17.75
20-lb. coating I.C. 15.30	40-lb. coating I.C. 19.85

## Alloy Steel Bars

(F.o.b. maker's mill.)

S.A.E. Series Numbers	Per 100 Lb.
2000 (½% Nickel).....	\$2.90
2100 (1½% Nickel).....	3.20
2300 (3½% Nickel).....	4.15
2500 (5% Nickel).....	4.90
3100 Nickel Chromium.....	3.20
3200 Nickel Chromium.....	3.65
3300 Nickel Chromium.....	6.45
3400 Nickel Chromium.....	5.85
4100 Chromium Molybdenum (0.15 to 0.25 Molybdenum) .....	3.15
4100 Chromium Molybdenum (0.25 to 0.40 Molybdenum) .....	3.85
4600 Nickel Molybdenum (0.20 to 0.30 Molybdenum, 1.25 to 1.75 Nickel).....	3.70
5100 Chromium Steel (0.60 to 0.90 Chrome).....	3.90
5100 Chromium Steel (0.80 to 1.10 Chrome).....	3.10
5100 Chromium Spring Steel.....	2.85
6100 Chromium Vanadium Bars.....	3.85
6100 Chromium Vanadium Spring Steel.....	3.60
9250 Silicon Manganese Spring Steel.....	2.90
Chrome Nickel Vanadium.....	4.15
Carbon Vanadium .....	3.60

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in., the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½ in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

Slabs with sectional area of 16 in. or over carry the billet price; slabs with sectional area of 12 in. to 16 in. carry a \$5 extra above the billet price and slabs with a sectional area under 12 in. carry the bar price.

Band sizes are 40c. per 100 lb. higher.

## Rails

### Per Gross Ton

Standard, f.o.b. mill .....	\$43.60
Light (from billets), f.o.b. mill.....	36.00
Light (from rail steel), f.o.b. mill.....	34.00
Light (from billets), f.o.b. Ch'go mill.....	36.00

## Track Equipment

### Base Per 100 Lb

Spikes, ½ in. and larger.....	\$2.80
Spikes, ½ in. and smaller.....	2.80
Spikes, boat and barge.....	3.00
Tie plates, steel.....	2.15
Angle bars .....	2.75
Track bolts, to steam railroads.....	\$3.80 to 4.90
Track bolts, to jobbers, all sizes, per 100 count, 70 per cent off list	

## Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

### Butt Weld

Steel	Iron
Inches	Inches
Black	Black
Galv.	Galv.
¼ to ¾.....	¼ to ¾.....
¾ to 1.....	¾ to 1.....
1 to 1½.....	1 to 1½.....
1½ to 2.....	1½ to 2.....
2 to 2½.....	2 to 2½.....
2½ to 3.....	2½ to 3.....
3 to 3½.....	3 to 3½.....
3½ to 4.....	3½ to 4.....
4 to 4½.....	4 to 4½.....
4½ to 5.....	4½ to 5.....
5 to 5½.....	5 to 5½.....
5½ to 6.....	5½ to 6.....
6 to 6½.....	6 to 6½.....
6½ to 7.....	6½ to 7.....
7 to 7½.....	7 to 7½.....
7½ to 8.....	7½ to 8.....
8 to 8½.....	8 to 8½.....
8½ to 9.....	8½ to 9.....
9 to 9½.....	9 to 9½.....
9½ to 10.....	9½ to 10.....
10 to 10½.....	10 to 10½.....
10½ to 11.....	10½ to 11.....
11 to 11½.....	11 to 11½.....
11½ to 12.....	11½ to 12.....
12 to 12½.....	12 to 12½.....
12½ to 13.....	12½ to 13.....
13 to 13½.....	13 to 13½.....
13½ to 14.....	13½ to 14.....
14 to 14½.....	14 to 14½.....
14½ to 15.....	14½ to 15.....
15 to 15½.....	15 to 15½.....
15½ to 16.....	15½ to 16.....
16 to 16½.....	16 to 16½.....
16½ to 17.....	16½ to 17.....
17 to 17½.....	17 to 17½.....
17½ to 18.....	17½ to 18.....
18 to 18½.....	18 to 18½.....
18½ to 19.....	18½ to 19.....
19 to 19½.....	19 to 19½.....
19½ to 20.....	19½ to 20.....
20 to 20½.....	20 to 20½.....
20½ to 21.....	20½ to 21.....
21 to 21½.....	21 to 21½.....
21½ to 22.....	21½ to 22.....
22 to 22½.....	22 to 22½.....
22½ to 23.....	22½ to 23.....
23 to 23½.....	23 to 23½.....
23½ to 24.....	23½ to 24.....
24 to 24½.....	24 to 24½.....
24½ to 25.....	24½ to 25.....
25 to 25½.....	25 to 25½.....
25½ to 26.....	25½ to 26.....
26 to 26½.....	26 to 26½.....
26½ to 27.....	26½ to 27.....
27 to 27½.....	27 to 27½.....
27½ to 28.....	27½ to 28.....
28 to 28½.....	28 to 28½.....
28½ to 29.....	28½ to 29.....
29 to 29½.....	29 to 29½.....
29½ to 30.....	29½ to 30.....
30 to 30½.....	30 to 30½.....
30½ to 31.....	30½ to 31.....
31 to 31½.....	31 to 31½.....
31½ to 32.....	31½ to 32.....
32 to 32½.....	32 to 32½.....
32½ to 33.....	32½ to 33.....
33 to 33½.....	33 to 33½.....
33½ to 34.....	33½ to 34.....
34 to 34½.....	34 to 34½.....
34½ to 35.....	34½ to 35.....
35 to 35½.....	35 to 35½.....
35½ to 36.....	35½ to 36.....
36 to 36½.....	36 to 36½.....
36½ to 37.....	36½ to 37.....
37 to 37½.....	37 to 37½.....
37½ to 38.....	37½ to 38.....
38 to 38½.....	38 to 38½.....
38½ to 39.....	38½ to 39.....
39 to 39½.....	39 to 39½.....
39½ to 40.....	39½ to 40.....
40 to 40½.....	40 to 40½.....
40½ to 41.....	40½ to 41.....
41 to 41½.....	41 to 41½.....
41½ to 42.....	41½ to 42.....
42 to 42½.....	42 to 42½.....
42½ to 43.....	42½ to 43.....
43 to 43½.....	43 to 43½.....
43½ to 44.....	43½ to 44.....
44 to 44½.....	44 to 44½.....
44½ to 45.....	44½ to 45.....
45 to 45½.....	45 to 45½.....
45½ to 46.....	45½ to 46.....
46 to 46½.....	46 to 46½.....
46½ to 47.....	46½ to 47.....
47 to 47½.....	47 to 47½.....
47½ to 48.....	47½ to 48.....
48 to 48½.....	48 to 48½.....
48½ to 49.....	48½ to 49.....
49 to 49½.....	49 to 49½.....
49½ to 50.....	49½ to 50.....
50 to 50½.....	50 to 50½.....
50½ to 51.....	50½ to 51.....
51 to 51½.....	51 to 51½.....
51½ to 52.....	51½ to 52.....
52 to 52½.....	52 to 52½.....
52½ to 53.....	52½ to 53.....
53 to 53½.....	53 to 53½.....
53½ to 54.....	53½ to 54.....
54 to 54½.....	54 to 54½.....
54½ to 55.....	54½ to 55.....
55 to 55½.....	55 to 55½.....
55½ to 56.....	55½ to 56.....
56 to 56½.....	56 to 56½.....
56½ to 57.....	56½ to 57.....
57 to 57½.....	57 to 57½.....
57½ to 58.....	57½ to 58.....
58 to 58½.....	58 to 58½.....
58½ to 59.....	58½ to 59.....
59 to 59½.....	59 to 59½.....
59½ to 60.....	59½ to 60.....
60 to 60½.....	60 to 60½.....
60½ to 61.....	60½ to 61.....
61 to 61½.....	61 to 61½.....
61½ to 62.....	61½ to 62.....
62 to 62½.....	62 to 62½.....
62½ to 63.....	62½ to 63.....
63 to 63½.....	63 to 63½.....
63½ to 64.....	63½ to 64.....
64 to 64½.....	64 to 64½.....
64½ to 65.....	64½ to 65.....
65 to 65½.....	65 to 65½.....
65½ to 66.....	65½ to 66.....
66 to 66½.....	66 to 66½.....
66½ to 67.....	66½ to 67.....
67 to 67½.....	67 to 67½.....
67½ to 68.....	67½ to 68.....
68 to 68½.....	68 to 68½.....
68½ to 69.....	68½ to 69.....
69 to 69½.....	69 to 69½.....
69½ to 70.....	69½ to 70.....
70 to 70½.....	70 to 70½.....
70½ to 71.....	70½ to 71.....
71 to 71½.....	71 to 71½.....
71½ to 72.....	71½ to 72.....
72 to 72½.....	72 to 72½.....
72½ to 73.....	72½ to 73.....
73 to 73½.....	73 to 73½.....
73½ to 74.....	73½ to 74.....
74 to 74½.....	74 to 74½.....
74½ to 75.....	74½ to 75.....
75 to 75½.....	75 to 75½.....
75½ to 76.....	75½ to 76.....
76 to 76½.....	76 to 76½.....
76½ to 77.....	76½ to 77.....
77 to 77½.....	77 to 77½.....
77½ to 78.....	77½ to 78.....
78 to 78½.....	78 to 78½.....

ard pipe, with a few extra demands prompted by the news of higher prices, but in other classes of pipe business still is slow. In line pipe the Amarillo, Tex.-Kansas City gas line, requiring more than 100,000 tons, is believed to be the nearest the mills of the several projected lines.

**Sheets.**—No complaint is heard as to the rate at which business is flowing in, but there continues to be a lack of satisfaction over prices, notably on galvanized sheets, which are hard to sell at more than 3.65c., base Pittsburgh. No small part of the production of this grade is distributed through jobbers and, having had opportunity to stock up at low prices, they can now profitably compete with the mills at less than mill prices. On black sheets, the efforts of mills to establish 2.90c., base, is less seriously hampered and on blue annealed sheets deviations from quotations are rare.

**Tin Plate.**—Tin plate mill operations are holding their recent gains and there are sustained specifications on contracts. New business does not amount to much, as there are few important consumers that are not under contracts for the first half of the year. Condensed milk can sizes are moving especially well just now.

**Cold-Finished Steel Bars and Shafting.**—Important consumers are covered for second quarter at 2.20c., base Pittsburgh, but except for the writing of these commitments, the market lacks feature and with prices settled, buyers are specifying in strict accordance with known requirements.

**Bolts, Nuts and Rivets.**—Reference to a price of \$2.75, base Pittsburgh, on large rivets in last week's report was an error. It should have read \$2.90, to which almost all manufacturers advanced five weeks ago and which has been the basis of the great bulk of the business since closed. Small rivets are commonly quoted at 70 per cent off list. Bolt and nut business in March stepped up substantially from the February rate, which in turn ran better than January's. Railroads are releasing more tonnage than at the beginning of the year, and companies supplying the automotive industry are still doing well. Observance of quotations by makers is remarkably uniform.

**Hot-Rolled Flats.**—Recent price uncertainty appears to have disappeared, and fears by manufacturers that the advances could not be maintained have vanished before the fact that much second quarter business has been taken at 1.90c. for stock wider than 6 to 12-in., 2.10c. for 6 to 3-in. and 2.20c. for narrower than 3-in. Any deviations from these prices appear to have been on the very large tonnages of the motor car builders, who, however, are paying \$2 to \$3 per ton more for second quarter tonnage than on first quarter shipments. The market is steadier than it was even as recently as a week ago.

**Cold-Rolled Strips.**—This product has not had the test of large inquiries that have been out on hot-rolled strips. One explanation appears in the fact that large

buyers were able to add to their first quarter purchases and they have not yet developed fresh requirements of size. On ordinary tonnages the market appears established at 3.15c., base, for lots of 1 to 3 tons, or 2.90c. for lots of 3 tons or more.

**Coke and Coal.**—It is hard to imagine a duller market than exists in spot coke and coal. Blast furnaces running on Connellsville coke are entirely covered against their requirements for this quarter and almost the only demand for spot furnace coke is from water gas producers. Demand for heating coke has dwindled on account of mild weather. Some good sized orders from the East for coke for water gas have gone to Eastern by-product coke companies, further reducing the market for western Pennsylvania coke. Users of foundry coke are well covered by contracts and spot business is limited.

**Old Material.**—The market here holds its recent strength in heavy melting steel and compressed sheets. In the latter, the local production is light and it is necessary to go into other districts to secure them. One melter in this district uses nothing else, while another prefers them to the general run of offerings of heavy melting steel at equal prices. Dealers are short of heavy melting steel at several points in the district and are eagerly picking up offerings, particularly of railroad or equivalent steel, for which they are paying up to \$15.50 and yet are not getting enough to meet the requirements of consumers. With yard stocks well reduced, it seems likely that the steel in April railroad lists will fetch that price and possibly more. The market is dull in the other grades. The April scrap list of the Norfolk & Western Railroad is exceptionally heavy, containing 14,334 gross tons. Other roads also have large April lists, but there is little doubt but that the open-hearth grades will be actively wanted and will sell high.

*Prices per gross ton delivered consumers' yards in Pittsburgh and points taking the Pittsburgh district freight rate:*

Basic Open-Hearth Furnace Grades:	
Heavy melting steel.....	\$15.00 to \$15.50
Scrap rails .....	14.50 to 15.00
Compressed sheet steel.....	14.75 to 15.00
Bundled sheets, sides and ends...	13.50 to 14.00
Cast iron carwheels.....	14.50 to 15.00
Sheet bar crops, ordinary.....	15.00 to 15.50
Heavy breakable cast.....	13.50
No. 2 railroad wrought.....	15.00 to 15.50
Heavy steel axle turnings.....	13.00 to 13.50
Machine shop turnings.....	10.50
Acid Open-Hearth Furnace Grades:	
Railroad knuckles and couplers..	16.50 to 17.00
Railroad coil and leaf springs...	16.50 to 17.00
Roller steel wheels.....	16.50 to 17.00
Low phosphorus billet and bloom ends .....	18.50 to 19.00
Low phosphorus, mill plate.....	17.50 to 18.00
Low phosphorus, light grade.....	16.50 to 17.00
Low phosphorus sheet bar crops...	17.50 to 18.00
Heavy steel axle turnings.....	13.00 to 13.50
Electric Furnace Grades:	
Low phosphorus punchings.....	16.50 to 17.00
Heavy steel axle turnings.....	13.00 to 13.50
Blast Furnace Grades:	
Short shoveling steel turnings...	10.50 to 11.00
Short mixed borings and turnings	10.50 to 11.00
Cast iron borings.....	11.00 to 11.25
No. 2 busheling.....	10.00 to 10.50
Rolling Mill Grades:	
Steel car axles.....	18.00 to 19.00
No. 1 railroad wrought.....	11.00 to 11.50
Sheet bar crops.....	17.00 to 17.50
Cupola Grades:	
No. 1 cast.....	14.50 to 15.00
Rails 3 ft. and under.....	15.00 to 15.25
Malleable Grades:	
Railroad .....	15.00 to 15.50
Industrial .....	14.50 to 15.00
Agricultural .....	14.00 to 14.50

#### Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Plates .....	3.00c.
Structural shapes .....	3.00c.
Soft steel bars and small shapes.....	2.90c.
Reinforcing steel bars.....	2.75c.
Cold-finished and screw stock—	
Rounds and hexagons.....	3.60c.
Squares and flats.....	4.10c.
Bands .....	3.60c.
Hoops .....	4.00c. to 4.50c.
Black sheets (No. 24 gage), 25 or more bundles .....	3.65c.
Galvanized sheets (No. 24 gage), 25 or more bundles .....	4.50c.
Blue annealed sheets (No. 10 gage), 25 or more sheets .....	3.10c.
Galvanized corrugated sheets (No. 28 gage), per square.....	\$4.39
Spikes, large .....	3.40c.
Small .....	3.80c. to 5.25c.
Boat .....	3.80c.
Track bolts, all sizes, per 100 count, 62½ per cent off list	
Machine bolts, per 100 count, 62½ per cent off list	
Carriage bolts, per 100 count, 62½ per cent off list	
Nuts, all styles, per 100 count, 62½ per cent off list	
Large rivets, base per 100 lb. ....	\$3.50
Wire, black soft annealed, base per 100 lb. ....	\$3.00 to 3.10
Wire, galvanized soft, base per 100 lb. ....	3.00 to 3.10
Common wire nails, per keg.....	3.00
Cement coated nails, per keg.....	3.05

#### D. A. Schulte Resigns as Arbitrator in Tutein-Hudson Valley Case

D. A. Schulte, who was selected by Charles M. Schwab, president American Iron and Steel Institute, as the third arbitrator in the case of E. Arthur Tutein, Inc., against the Hudson Valley Coke & Products Corporation, has resigned and another will be appointed in his place. A preliminary hearing had been held when Mr. Schulte decided he would not continue. The litigation comes under an arbitration clause in the contract which the Tutein company had for the sale of Hudson Valley coke and pig iron.

# Semi-Finished Steel, Raw Materials, Bolts and Rivets

## Mill Prices of Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

### Billets and Blooms

	Per Gross Ton
Rerolling, 4-in. and over.....	\$33.00
Rerolling, under 4-in. to and including 1½ in. ....	\$33.50 to \$4.00
Forging, ordinary.....	38.00 to 39.00
Forging, guaranteed.....	43.00 to 44.00

### Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer.....	\$34.00

### Slabs

	Per Gross Ton
8 in. x 2 in. and larger.....	\$33.00
Smaller than 8 in. x 2 in.....	34.00

### Skelp

	Per Lb.
Grooved.....	1.85c. to 1.90c.
Sheared.....	1.85c. to 1.90c.
Universal.....	1.85c. to 1.90c.

### Wire Rods

	Per Gross Ton
*Common soft, base.....	\$44.00
Screw stock.....	\$5.00 per ton over base

\*Chicago mill base is \$45. Cleveland mill base, \$44.

## Prices of Raw Material

### Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron.....	\$4.55
Old range non-Bessemer, 51.50% iron.....	4.40
Mesabi Bessemer, 51.50% iron.....	4.40
Mesabi non-Bessemer, 51.50% iron.....	4.25
High phosphorus, 51.50% iron.....	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algeria.....	10.00c.
Iron ore, Swedish, average 66% iron, 9.25c. to 9.50c.	

Manganese ore, washed, 52% manganese, from the Caucasus.....

Manganese ore, Brazilian, African or Indian, basis 50%.....

Tungsten ore, high grade, per unit, in 60% concentrates.....

Chrome ore, 45 to 50% Cr<sub>2</sub>O<sub>3</sub>, crude, c.i.f. Atlantic seaboard.....

Molybdenum ore, 85% concentrates of MoS<sub>2</sub>, delivered.....

### Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt.....	\$2.60 to \$2.75
Foundry, f.o.b. Connellsville prompt.....	3.75 to 4.50
Foundry, by-product, Chicago ovens.....	9.00
Foundry, by-product, New England, del'd.....	11.00
Foundry, by-product, Newark or Jersey City, delivered.....	9.45 to 9.85
Foundry, Birmingham.....	5.00
Foundry, by-product, St. Louis.....	9.75

### Coal

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines.....	\$1.40 to \$1.80
Mine run coking coal, f.o.b. W. Pa. mines.....	1.50 to 1.75
Gas coal, ¼-in., f.o.b. Pa. mines.....	2.00 to 2.10
Mine run gas coal, f.o.b. Pa. mines.....	1.75 to 1.90
Steam slack, f.o.b. W. Pa. mines.....	0.90 to 1.00
Gas slack, f.o.b. W. Pa. mines.....	1.00 to 1.10

### Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd.....	\$100.00
Foreign, 80%, Atlantic or Gulf port, duty paid.....	100.00

### Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%.....	\$31.00 to \$32.00
Domestic, 16 to 19%.....	29.00

### Electric Ferrosilicon

	Per Gross Ton Delivered
50%.....	\$83.50 to \$88.50
75%.....	130.00 to 140.00

### Bessemer Ferrosilicon

	Per Gross Ton
F.o.b. Jackson County, Ohio, Furnace.....	
10%.....	\$30.00
11%.....	32.00

### Silvery Iron

	Per Gross Ton
F.o.b. Jackson County, Ohio, Furnace.....	
6%.....	\$23.00
7%.....	24.00
8%.....	25.00
9%.....	26.00

### Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd.....	92c. to 95c.
Ferrochromium, 4 to 6% carbon and up, 65 to 70% Cr., per lb. contained Cr. delivered, in carloads.....	11.00c.
Ferrovandium, per lb. contained vanadium, f.o.b. furnace.....	\$3.15 to \$3.65
Ferrocobalt, 15 to 18%, per net ton, f.o.b. furnace, in carloads.....	\$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per gross ton.....	\$91.00
Ferrophosphorus, electric, 24%, f.o.b. An-niston, Ala., per gross ton.....	\$122.50

### Fluxes and Refractories

#### Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines.....	\$15.00
No. 2 lump, Illinois and Kentucky mines.....	\$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid.....	\$16.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines.....	\$32.50

#### Fire Clay

	Per 1000 f.o.b. Works
	First Quality Second Quality
Pennsylvania.....	\$43.00 to \$46.00 \$35.00 to \$38.00
Maryland.....	43.00 to 46.00 35.00 to 38.00
New Jersey.....	50.00 to 65.00
Ohio.....	43.00 to 46.00 35.00 to 38.00
Kentucky.....	43.00 to 46.00 35.00 to 38.00
Missouri.....	43.00 to 46.00 35.00 to 38.00
Illinois.....	43.00 to 46.00 35.00 to 38.00
Ground fire clay, per ton.....	7.00

#### Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania.....	\$43.00
Chicago.....	52.00
Birmingham.....	50.00
Silica clay, per ton.....	\$8.50 to 10.00

#### Magnesite Brick

	Per Net Ton
Standard sizes, f.o.b. Baltimore and Chester, Pa. ....	\$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa. ....	40.00

#### Chrome Brick

	Per Net Ton
Standard size.....	\$45.00

## Mill Prices of Bolts, Nuts, Rivets and Set Screws

### Bolts and Nuts

	Per 100 Pieces
(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)	
†Machine bolts.....	Per Cent Off List
†Carriage bolts.....	.70
Lag bolts.....	.70
Plow bolts, Nos. 1, 2, 3 and 7 heads.....	.70
Hot-pressed nuts, blank or tapped, square.....	.70
Hot-pressed nuts, blank or tapped, hexagons.....	.70
C.p.c. and t. square or hex. nuts, blank or tapped.....	.70
Washers*.....	6.75c. to 6.50c. per lb. off list

\*F.o.b. Chicago, New York and Pittsburgh.  
†Bolts with rolled thread up to and including ½ in. x 6 in. take 10 per cent lower list prices.

### Bolts and Nuts

	Per Cent Off List
Semi-finished hexagon nuts.....	.70
Semi-finished hexagon castellated nuts, S.A.E.....	.70
Stove bolts in packages, Pittsburgh.....	.80, 10 and 2½
Stove bolts in packages, Chicago.....	.75, 20, 10 and 5
Stove bolts in bulk, Pittsburgh.....	.80, 10 and 5
Stove bolts in bulk, Chicago.....	.75, 20, 10, 5 and 2½
Tire bolts.....	.60, 5 and 5

Discounts of 70 per cent off on bolts and nuts applied on carload business. For less than carload orders discounts of 55 to 60 per cent apply.

### Large Rivets

	Base per 100 Lb.
(½-In. and Larger)	
F.o.b. Pittsburgh or Cleveland.....	\$2.90
F.o.b. Chicago.....	3.00

### Small Rivets

	Per Cent Off List
(¾-In. and Smaller)	
F.o.b. Pittsburgh.....	.70 and 10 to 70
F.o.b. Cleveland.....	.70 and 10 to 70
F.o.b. Chicago.....	.70 and 10 to 70

### Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb. on lots of 200 lb. or more)

	Per Cent Off List
Milled cap screws.....	.80, 10 and 10
Milled standard set screws, case hardened, 80 and 10	
Milled headless set screws, cut thread.....	.85 and 5
Upset hex. head cap screws, U.S.S. thread, 85 and 5	
Upset hex. cap screws, S.A.E. thread.....	.85 and 5
Upset set screws.....	.80, 10 and 10
Milled studs.....	.70 and 5



# Chicago

## Ingot Output Remains High—Second Quarter Pig Iron Buying Heavy

CHICAGO, April 3.—Production of steel ingots in the Chicago district remains close to the level—93 to 95 per cent—reached in the early days of March. Revisions downward in operating schedules are scarcely worthy of note, and where they have been made they have occurred more frequently in light tonnage commodities such as wire products. The strength of the Chicago market lies principally in its uniformity. Irregularity in prices is no more pronounced than a week ago. Sales are in larger volume than shipments and specifications exceed production, both factors indicating that deliveries will become more extended. Forward contracting represents a larger portion of total sales than in a number of the preceding quarters, nevertheless the greater number of buyers will take steel only as they require it or in sufficient quantity to assure uninterrupted plant operations.

Compared with recent weeks the past seven days have not been up to par in structural awards. Some in the trade are of the belief that the advancing prices for steel were used to rush out a number of projects that normally would not be quite ready for the market. On this score it is not uncommon to find the opinion expressed that structural awards may be lean in the second quarter. The fact remains, however, that talked-of projects are of large aggregate tonnage and financial arrangements may determine whether they go ahead rather than prices of materials.

**Pig Iron.**—It is now definitely known that second quarter sales of Northern foundry iron were heavier than in any three-month period for several years. Buyers are now looking forward to piecing out tonnages that will be required near the end of this quarter to take the place of iron that is being shipped ahead of the original schedules. Third quarter inquiry is growing in importance and several contracts for that period have been placed. Shipments for March were the best since last August, and the first days of April show no slackening in the demand. Merchant iron output is steady, with two Iroquois, two Federal and the Zenith furnaces in blast. Occasional carloads of Southern iron are reaching Michigan on an all-rail freight rate from Birmingham. Some buyers in and close to Chicago are taking scattered carloads of high silicon iron that is shipped by rail from Cleveland. The freight rate from Cleveland to Chicago is \$4.41. Silvery iron is active only in car lots. The opening of navigation is expected by some to bring about the movement of cargoes of Lake Erie iron into this district.

### Prices per gross ton at Chicago:

Northern No. 2 foundry, sil. 1.75 to 2.25	\$18.50
N'th'n No. 1 fdy., sil. 2.25 to 2.75	19.00
Malleable, not over 2.25 sil.	18.50
High phosphorus	18.50
Lake Superior charcoal, averaging sil. 1.50	27.04
Southern No. 2 fdy. (all rail)	22.01
Southern No. 2 (barge and rail)	21.18
Low phos., sil. 1 to 2 per cent, copper free	\$28.50 to 29.00
Silvery, sil. 8 per cent.	29.79
Bessemer ferrosilicon, 14 to 15 per cent	46.79

Prices are delivered consumers' yards except on Northern foundry, high phosphorus and malleable, which are f.o.b. local furnace, not including an average switching charge of 61c. per gross ton.

**Ferroalloys.**—This market is quiet. A carload and several less-than-carload lots of ferromanganese have been ordered. Specifications for ferrosilicon are heavy.

Prices delivered Chicago: 80 per cent ferromanganese, \$107.56; 50 per cent ferrosilicon, \$83.50 to \$87.50; spiegeleisen, 19 to 21 per cent, \$38.76 to \$39.76.

**Bolts, Nuts and Rivets.**—Contracting for the second quarter is practically completed, and it is evident that recent advances in prices have held. Specifications in the week are a shade heavier than for the average seven-day period in March.

**Coke.**—Shipments of by-product foundry coke are steady, following a slight upturn at the end of March. All ovens in this district are lighted. Prices are steady

at \$9, local ovens, and \$9.50, delivered in the Chicago switching district.

**Plates.**—Car building programs are moving steadily as indicated by specifications for plates, shapes and bars that aggregate 30,000 tons. Railroad equipment buying is confined to 300 refrigerator cars by the North American Car Corporation. Fresh inquiry is slow. Railroads that have received bids on rolling stock appear to be in no hurry to place contracts. Tank builders in Chicago and in the Southwest are busy, and specifications from that source in the week total 4000 tons. Inquiry before the trade is heavy. Schedules at universal mills are satisfactory and deliveries on that commodity range from five to six weeks. Shipments of sheared plates can be had in three weeks. The bulk of new sales in plates is at 2c., Chicago, but contracts entered before the price advance and which were not specified in full are dragging over into April.

Mill prices on plates per lb.: 2.00c., base Chicago.

**Structural Material.**—It is reported that the Woolworth Building, State and Washington Streets, Chicago, for which steel already has been purchased for the first four floors, may be extended to the height originally intended, namely, 24 stories. The steel award for the Austin High School, Chicago, requiring 3500 tons, is delayed. About 650 tons will be needed for the approaches to the Crawford Avenue Bridge, Chicago. Structural mills in this district are well engaged, and deliveries are extending slightly as specifications exceed shipments by a small margin. Car builders, fabricating shops and bridges are taking the bulk of tonnage now being shipped from mills. New sales, which for the most part are being made at prevailing prices, namely, 2c., Chicago, are in small volume. Local fabricators are well supplied with work and they have better arranged schedules as a result of a more generous supply of small tonnage awards.

Mill prices on plain material per lb.: 2.00c., base, Chicago.

**Bars.**—Mild steel bars are the most active of the heavy tonnage steel mill products. Specifications in the week were unusually heavy and sales were proportionately large in the aggregate. Fresh buying represents for the most part users' needs for 30 to 45 days, indicating little or no speculation and that stocks are not being allowed to accumulate in the hands of users. The bulk of new purchases are at 2c., Chicago, but much 1.90c. tonnage contracted for before the advance in prices, will be shipped in April. Mills are receiving orders from well diversified sources. The automobile trade, farm implement manufacturers and makers of cold drawn bars are the largest users. New sales in iron bars are the largest in many months and mill backlogs are heavier than at any time since the turn of the year. Prices on iron bars are steady at 2c., Chicago. The new base price and differentials on alloy steel bars are holding firmly. Local mills are engaged at close to capacity. Buyers' interest in rail steel bars is growing and new sales exceed production. Specifications fully equal shipments and deliveries have been extended to two to three weeks. The bed industry is holding the gain registered in early March, and farm implement manufacturers continue to issue heavy specifications. Prices for hard steel bars are firm at 1.85c., although much 1.80c. steel will be shipped in April against old contracts. Shipments of fence posts are heavy and mill stocks are rapidly being reduced.

Mill prices per lb.: Soft steel bars, 2.00c. base, Chicago; common bar iron, 2.00c., base, Chicago; rail steel bars, 1.80c. to 1.85c., base, Chicago Heights mill.

**Wire Products.**—Mill shipments are lighter and operations have been adjusted to the range of 70 to 75 per cent of capacity. The nail market continues dull, though such sales as are being made are at the full schedule. Shipments of this commodity probably represent not more than 30 per cent of mill capacity, which gives some idea of the overstocked condition of distributors. A sharp upturn in sales is reported in the Northwest, and improved road conditions in the Missouri River Valley are making distribution easier in the States that lie west of the Mississippi River. Wire products' shipments in March were the best so far this year and they were measurably heavier than in the

third month of 1927. Railroad orders are steady but in small aggregate tonnage.

**Reinforcing Bars.**—The building program in this district continues to grow and concrete reinforcing bar awards are heavier. Shops that 10 days ago were facing a rapid shrinkage in order books are now booking tonnage at a rate that approximates shipments. The urge to take business is resulting in unsettlement of prices. Bars made from billet stock are now quoted 2.20c. to 2.55c., Chicago warehouses. Rail steel reinforcing bars bring 1.85c., mill, for the ordinary run of work and 1.95c. for bridges and culverts. These quotations are stable, but there is more inclination to take small orders without the usual extras.

**Cold Rolled Strip.**—Prices in this district are steady. Specifications are fully equal to production which stands at 75 per cent of capacity.

**Rails and Track Supplies.**—Chicago district rail mills are engaged at 90 per cent of capacity, and schedules indicate no lessening in that rate until about July 1. A Western railroad has ordered 4000 tons of standard-section rails. Purchases of light rails aggregate close to 100 tons. The Pennsylvania Railroad is now asking for its second quarter requirements of track supplies. Miscellaneous orders for track fastenings total 2000 tons. Accessory mills are operating close to 70 per cent of capacity.

*Prices f.o.b. mill, per gross ton:* Standard-section open-hearth and Bessemer rails, \$43; light rails, rolled from billets, \$36. *Per lb.:* Standard railroad spikes, 2.80c.; track bolts with square nuts, 3.80c.; steel tie plates, 2.25c.; angle bars, 2.75c.

**Sheets.**—This market may be characterized as steady. Prices are holding and deliveries are three weeks for the blue annealed product and two to three weeks for black and galvanized sheets. Business, which has been dull in the South, now gives some signs of improving, while orders from the Northwest are gradually becoming more numerous. Specifications are fully equal to production, so that hot mill schedules are of the same length as a week ago. New buying, which is not in large volume, is for immediate requirements. Stocks in the hands of buyers are small, and prompt shipment is requested on practically all orders.

*Base prices per lb., delivered from mill in Chicago:* No. 24 black, 3.05c.; No. 24 galvanized, 3.90c.; No. 10 blue annealed, 2.25c. to 2.35c. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

**Cast Iron Pipe.**—Contracts for cast iron pipe have been numerous, but fresh inquiry is dull. It is evident that prices are stronger at \$29 to \$31, Birmingham, for 6-in. and larger diameters. The American Cast Iron Pipe Co. has taken 1500 tons of centrifugal pipe for Akron, Ohio. On 2000 tons of 6 to 24-in. pipe at South Bend, Ind., the low bid, made by James B. Clow & Sons, was \$29, Birmingham. The United States Cast Iron Pipe & Foundry Co. is reported to have taken 2000 tons at Detroit, 3200 tons at Chicago, 2000 tons at Evansville, Ind., and 1000 tons at Milwaukee. The low bid at Chicago was \$30.80 and at Milwaukee \$29.75, Birmingham. Waukegan, Ill., opened bids April 2 on 310 tons of 6 to 10-in. class B pipe.

*Prices per net ton, delivered Chicago:* Water pipe, 6-in. and over, \$36.20 to \$39.20; 4-in., \$40.20 to \$43.20; Class A and gas pipe, \$4 extra.

#### Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes.....	3.10c.
Soft steel bars.....	3.00c.
Reinforcing bars, billet steel.....	2.20c. to 2.55c.
Cold-finished steel bars and shafting—	
Rounds and hexagons.....	3.60c.
Flats and squares.....	4.10c.
Bands.....	3.65c.
Hoops.....	4.15c.
Black sheets (No. 24).....	3.95c.
Galvanized sheets (No. 24).....	4.80c.
Blue annealed sheets (No. 10).....	3.50c.
Spikes, standard railroad.....	3.55c.
Track bolts.....	4.55c.
Rivets, structural.....	3.60c.
Rivets, boiler.....	3.60c.
	Per Cent Off List
Machine bolts.....	60
Carriage bolts.....	60
Coach or lag screws.....	60
Hot-pressed nuts, squares, tapped or blank..	60
Hot-pressed nuts, hexagons, tapped or blank..	60
No. 8 black annealed wire, per 100 lb.....	\$3.20
Common wire nails, base per keg.....	3.00
Cement coated nails, base per keg.....	2.90

**Old Material.**—The tendency in the Chicago scrap market continues toward dullness and lower prices, but this change is not as marked as a week ago. A consumer purchase of cast iron borings was made at 25c. below last week's quotation, but a producer sold 1000 tons at \$10.25 per gross ton delivered, or 25c. above last week's price. Consumption of practically all grades is large and relatively steady, but supplies are fully adequate and strength is lacking. Users of heavy melting steel are busy, but they recently have built up stocks and therefore are somewhat independent as to quality and rate of deliveries. Steel mills have declined offers of heavy melting steel at \$12.75, but dealers continue to pay \$12.50 to \$13 per gross ton, delivered, for steel that is to be shipped against old contracts. Railroad offerings include 50,000 tons by the Pennsylvania and a blank list by the Michigan Central.

#### Prices delivered consumers' yards, Chicago:

	Per Gross Ton
<b>Basic Open-Hearth Grades:</b>	
Heavy melting steel.....	\$12.50 to \$13.00
Shoveling steel.....	12.50 to 13.00
Frogs, switches and guards, cut apart, and miscellaneous rails.....	13.50 to 14.00
Hydraulic compressed sheets.....	11.00 to 11.50
Drop forge flashings.....	9.75 to 10.25
Forged, cast and rolled steel car-wheels.....	14.50 to 15.00
Railroad tires, charging box size.....	15.50 to 16.00
Railroad leaf springs, cut apart..	15.50 to 16.00
<b>Acid Open-Hearth Grades:</b>	
Steel couplers and knuckles.....	13.75 to 14.25
Coil springs.....	16.25 to 16.75
<b>Electric Furnace Grades:</b>	
Axle turnings.....	13.00 to 13.50
Low phosphorus punchings.....	14.25 to 14.75
Low phosphorus plate, 12 in. and under.....	13.75 to 14.25
<b>Blast Furnace Grades:</b>	
Axle turnings.....	10.00 to 10.50
Cast iron borings.....	9.25 to 9.75
Short shoveling turnings.....	9.25 to 9.75
Machine shop turnings.....	7.00 to 7.50
<b>Rolling Mill Grades:</b>	
Iron rails.....	13.50 to 14.00
Rerolling rails.....	13.75 to 14.25
<b>Cupola Grades:</b>	
Steel rails less than 3 ft.....	15.00 to 15.50
Angle bars, steel.....	14.00 to 14.50
Cast iron carwheels.....	13.50 to 14.00
<b>Malleable Grades:</b>	
Railroad.....	12.50 to 13.00
Agricultural.....	12.00 to 12.50
<b>Miscellaneous:</b>	
*Relaying rails, 56 to 60 lb.....	23.00 to 25.00
*Relaying rails, 65 lb. and heavier.....	26.00 to 31.00
	Per Net Ton
<b>Rolling Mill Grades:</b>	
Iron angle and splice bars.....	14.00 to 14.50
Iron arch bars and transoms.....	18.50 to 19.00
Iron car axles.....	21.50 to 22.00
Steel car axles.....	15.50 to 16.00
No. 1 railroad wrought.....	11.00 to 11.50
No. 2 railroad wrought.....	11.00 to 11.50
No. 1 busheling.....	9.25 to 9.75
No. 2 busheling.....	5.25 to 5.75
Locomotive tires, smooth.....	12.50 to 13.00
Pipes and flues.....	8.00 to 8.50
<b>Cupola Grades:</b>	
No. 1 machinery cast.....	14.50 to 15.00
No. 1 railroad cast.....	12.50 to 13.00
No. 1 agricultural cast.....	12.50 to 13.00
Stove plate.....	11.25 to 11.75
Grate bars.....	11.25 to 11.75
Brake shoes.....	11.00 to 11.50
*Relaying rails, including angle bars to match, are quoted f.o.b. dealers' yards.	

The Chicago district sales office of the American Rolling Mill Co., Middletown, Ohio, has been removed from the Peoples Gas Building, 122 South Michigan Boulevard, to the Straus Building, 310 South Michigan Boulevard.

In the rebuilding of No. 4 furnace of the Hanna Furnace Co., Buffalo, a Steinbart washer and mud catcher are to be installed by the Riter-Conley Co., Pittsburgh. The stoves and boilers are to be equipped with Steinbart burners, supplied by the American Heat Economy Bureau, Pittsburgh. Twelve of these burners will be required.

The Erie Foundry Co., Erie, Pa., now is operating day and night shifts as a result of increased activity in the demand for forging shop equipment.



# Philadelphia

## First Quarter Steel Contracts Carry Over Into April

PHILADELPHIA, April 2.—Shipments of steel on contracts in this district were larger last month than in either of the two preceding months. Many first quarter contracts on plates, shapes and bars were fully specified by the end of last week, but there was a sizable tonnage of uncompleted contracts, with no evident inclination on the part of some mills to take advantage of the cancellation clause. Sellers of bars and plates are maintaining 1.90c., Pittsburgh, for bars and 2.05c., Coatesville, or 2.15c., Philadelphia, for plates on new business, which is limited to small lots. The contract price for this quarter is \$1 per ton less. Shapes have not reached the basis of 2.05c., Bethlehem, or 2.18c., Philadelphia, announced last month, so that both contracts for this quarter and new business are at 2c. per lb., Bethlehem, and there has been extension of old contracts at 1.95c., Bethlehem, or 2.08c., Philadelphia. The fabricated steel market is active, but chiefly on large projects. For the general run of small tonnage construction, prices continue low, despite recent advances in the mill price.

**Pig Iron.**—Furnaces are adhering to \$20 per ton, base, and are booking little tonnage. While foundry consumers are reported quite busy, most of this activity is among the larger foundries. Occasional orders for delivery during the present quarter continue to be reported as going to Buffalo furnaces quoting on rail and water shipment. A New Jersey melter is understood to have bought 900 tons of foundry iron from Buffalo at a delivered price figuring back to slightly less than \$16.50, base Buffalo. A total of 650 tons of foundry iron bought by the Consolidated Machine Tool Corporation, Rochester, N. Y., for its Hilles & Jones plant, Wilmington, Del., went to a large eastern Pennsylvania producer. Virginia cast iron pipe makers have recently closed on sizable tonnages of Virginia iron, one consumer contracting for about 10,000 tons and another for 3300 tons. There is a steady flow of business in small lots of low phosphorus iron.

### Prices per gross ton at Philadelphia:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$20.76
East. Pa. No. 2X, 2.25 to 2.75 sil.	21.26
East. Pa. No. 1X.	21.76
Basic (delivered eastern Pa.)	\$19.50 to 20.00
Gray forge	19.75 to 20.25
Malleable	21.00 to 21.50
Standard low phos. (f.o.b. New York State furnace)	23.00 to 24.00
Copper bearing low phos. (f.o.b. furnace)	23.50 to 24.00
Virginia No. 2 plain, 1.75 to 2.25 sil.	24.54 to 25.04
Virginia No. 2X, 2.25 to 2.75 sil.	25.04 to 25.54

Prices, except as specified otherwise, are delivered Philadelphia. Freight rates: 76c. to \$1.64 from eastern Pennsylvania furnaces; \$4.54 from Virginia furnaces.

### Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Plates, 1/4-in. and heavier	2.50c. to 2.60c.
Plates, 3/8-in.	2.80c. to 3.00c.
Structural shapes	2.40c. to 2.60c.
Soft steel bars, small shapes and iron bars (except bands)	2.50c.
Round-edge iron	3.50c.
Round-edge steel, iron finished 1 1/2 x 1 1/2 in.	3.50c.
Round-edge steel, planished	4.30c.
Reinforcing steel bars, square, twisted and deformed	2.50c. to 3.00c.
Cold-finished steel, rounds and hexagons	3.35c.
Cold-finished steel, squares and flats	3.85c.
Steel hoops	3.60c.
Steel bands, No. 12 gage to 3/8-in., inclusive	3.35c.
Spring steel	5.00c.
Black sheets (No. 24)	4.25c.
Galvanized sheets (No. 24)	5.10c.
Blue annealed sheets (No. 10)	3.15c.
Diamond pattern floor plates—1/4-in.	5.30c.
3/8-in.	5.50c.
Rails	3.20c.
Swedish iron bars	6.60c.

**Billets.**—Prices are unchanged at \$33 per ton, Pittsburgh, for rerolling billets and \$38, Pittsburgh, for forging quality. There is a slightly better volume of inquiry and purchasing, but no evidence has appeared of an advance in prices.

**Bars.**—Very little new business is coming out, but specifications against contracts are fair. There have been some extensions of first quarter contracts, but meanwhile second quarter contracts are effective at 1.85c., Pittsburgh. On new business mills are asking 1.90c., Pittsburgh.

**Shapes.**—Current quotations of 2.05c., Bethlehem, or 2.18c., delivered Philadelphia, apply only on the smallest lots. Contracts for this quarter are at 2c., Bethlehem, or 2.13c., Philadelphia, and some old contracts at \$1 a ton lower have been extended. Much of the pending tonnage of fabricated steel is included in large projects. The Pennsylvania Railroad bridge over Newark Bay requires 5000 tons, on which bids must be in April 26, and all bids are in on the 8000 tons of steel in the Tacony-Palmyra bridge. The Reading Railroad has announced that it will erect a \$3,000,000 office and warehouse building on Broad Street. The Sun Shipbuilding Co., Chester, which received contract for four Reading Railroad barges, has placed about 400 tons of shapes with the leading interest. The American Brown Boveri Electric Corporation, Camden, N. J., placed about 400 tons of shapes for two barges with a large independent.

**Plates.**—New business is limited to small lots, and for such business 2.05c. per lb., Coatesville, or 2.15c., Philadelphia, is maintained. Contracts for the present quarter are at 2c., Coatesville, or 2.10c., Philadelphia. Prospective purchase by the Southern Pacific Co. of 33 locomotives may bring some plate business to this district. The Tacony-Palmyra Bridge includes about 3500 tons of plates, and there is a smaller tonnage of plates in the Newark Bay Bridge, which is up for bids. The Sun Shipbuilding Co., Chester, has closed on about 700 tons of plates for four Reading Railroad barges, and the American Brown Boveri Electric Corporation, Camden, N. J., has purchased about 700 tons for two Reading barges.

**Old Material.**—Prices are substantially unchanged. About 25,000 tons of No. 1 steel and blast furnace scrap recently purchased was for Sparrows Point, Md. A Harrisburg consumer has closed on a tonnage of cast borings at \$10.50 per ton, delivered. Offers by an eastern Pennsylvania user of machine shop turnings of \$10 per ton, delivered, are reported not to have been accepted by brokers.

### Prices per gross ton delivered consumers' yards, Philadelphia district:

No. 1 heavy melting steel	\$13.50 to \$14.00
Scrap T rails	13.00 to 13.50
No. 2 heavy melting steel	11.00 to 11.50
No. 1 railroad wrought	14.50 to 15.00
Bundled sheets (for steel works)	10.50
Machine shop turnings (for steel works)	10.50
Heavy axle turnings (or equivalent)	12.00 to 12.50
Cast borings (for steel works and rolling mill)	10.50 to 11.00
Heavy breakable cast (for steel works)	15.50 to 16.00
Railroad grate bars	12.00 to 12.50
Stove plate (for steel works)	12.00 to 12.50
No. 1 low phos. heavy, 0.04 per cent and under	17.50 to 18.00
Couplers and knuckles	16.00 to 16.50
Rolled steel wheels	15.50 to 16.00
No. 1 blast furnace scrap	10.50 to 11.00
Machine shop turnings (for rolling mill)	11.00
Wrought iron and soft steel pipes and tubes (new specifications)	12.50
Shafting	17.50 to 18.00
Steel axles	19.00 to 20.00
No. 1 forge fire	11.00 to 11.50
Steel rails for rolling	15.00 to 15.50
Cast iron carwheels	15.50 to 16.00
No. 1 cast	16.00 to 16.50
Cast borings (for chemical plant)	14.50 to 15.00

**Sheets and Strips.**—Mills are quoting 2.90c., Pittsburgh, on black, 3.75c. on galvanized and 2.10c. on blue annealed sheets. There are still occasional concessions of \$1 to \$2 a ton on black and galvanized sheets. While 2.10c., base Pittsburgh, is firm on blue annealed sheets and strip steel sheets, buyers are registering some objection to paying the current width differentials of 10c. extra for wider than 40-in. or narrower than 24 in. The cold-rolled strip steel market is rather unsteady at 2.90c. per lb., Pittsburgh, and concessions are reported obtainable, ranging up to \$2 or more a ton.



**Warehouse Business.**—March was a good month with heavier shipments from stock than in either January or February. Prices are fairly firm and the quantity differentials are being maintained.

**Imports.**—In the week ended March 31, a total of 448 tons of pig iron arrived from India. Steel arrivals consisted of 40 tons of bands, 44 tons of bars and 335 tons of structural shapes from Belgium, 26 tons of bars and 44 tons of shapes from France and 55 tons of shapes from Germany.

## Cleveland

### Heavy Steel Specifications—Pig Iron Sales Make Large Gain

CLEVELAND, April 3.—Specifications against 1.80c. contracts for steel bars, plates and structural material that expired March 31 were fairly heavy and buyers did not allow much tonnage to be cancelled. In some cases contract tonnage has been carried over to the second quarter, but will take the 1.85c. price. Shipments against the 1.80c. material will extend well through April. Mills are getting a fair volume of small-lot orders at the 1.90c. Pittsburgh price from small consumers who do not place contracts, but most buyers are under contract at 1.85c. The Cleveland mill steel bar price of 1.90c., which never was much more than a nominal quotation, has disappeared, producers no longer asking above 1.85c., Cleveland.

Orders for steel from the automotive industry show no falling off, and as yet there is no indication of any slowing down by this industry. Reports indicate a continuance of heavy sales by dealers of low-priced automobiles, but some of the medium and high-priced cars are not moving so well. Automobile companies as a rule are buying steel only far enough ahead to take care of their requirements for a few weeks. Inquiry for structural steel in the building field is rather slow. The Akron, Canton & Youngstown Railroad has placed 6000 tons of standard rails with a Pittsburgh district mill.

**Pig Iron.**—The market took on new life the past week, during which Cleveland interests sold 65,000 tons of foundry and malleable iron, or as much as during the peak of the second quarter buying a few weeks ago. Much of the business came from Michigan and Indiana, although there was a fair amount of activity in Ohio. The increased buying seemed due to the fact that many foundries had about cleaned up on first quarter contracts and were ready to make commitments for the present quarter. While no third quarter sales are reported, shipments of some of the iron bought will extend into that quarter. Some round-lot purchases were made by automobile parts manufacturers, who look for a continuation of their present good business well into or through the present quarter. Considerable inquiry is pending. Prices remain well stabilized at \$17 to \$17.50, Lake furnace, for foundry and malleable iron. For Ohio delivery, Lake furnaces are unable to get above \$17 and for shipment to highly competitive points \$16.75 is still being quoted. In Michigan the \$18 price is maintained. Silicon differentials are not being closely adhered to. March shipments were about equal to those in February and

April is starting out with good shipping orders. Reports from Detroit indicate that the Ford Motor Co. is planning to place considerable business with jobbing foundries. It is expected that these will be supplied with pig iron from the Ford furnaces.

#### Prices per gross ton at Cleveland:

N'th'n No. 2 fdy., sil. 1.75 to 2.25.....	\$18.50
Southern fdy., sil. 1.75 to 2.25.....	22.00
Malleable .....	18.50
Ohio silvery, 8 per cent.....	28.00
Basic, Valley furnace.....	17.00
Standard low phos., Valley furnace.....	\$26.50 to 27.00

Prices, except on basic and low phosphorus, are delivered Cleveland. Freight rates: 50c. from local furnaces; \$3 from Jackson, Ohio; \$6 from Birmingham.

**Iron Ore.**—Ore firms have made quotations on the inquiry for 440,000 tons of Lake Superior ore from the Ford Motor Co., Detroit, which asked that bids be submitted by today. It is known that some of the producers submitted last year's prices, and it is expected that the market will be established at these prices. The Ford business will probably be closed within a week. Last season's prices have been quoted on another round lot of ore, but the prospective buyer is withholding purchase until the season's prices are established.

**Semi-Finished Steel.**—The present price of \$33, Cleveland and Youngstown, for sheet bars, large billets and slabs is expected to prevail through the second quarter, although not yet definitely placed in effect. The leading local producer is making April shipments subject to prices to be established. Specifications continue heavy.

**Sheets.**—The volume of business from the automotive industry continues heavy, but the demand from other sources is only moderate. Consumers generally are limiting purchases to early requirements and few have placed second quarter contracts. Price irregularities continue on black and galvanized sheets and in that respect the market shows little change from a week ago. On black sheets 2.90c., Valley mill, has become the more general quotation and this is evidently being shaded for attractive lots. On galvanized sheets 3.65c., Ohio mill, is rather commonly quoted. Blue annealed sheets are holding closely to the 2.10c., Pittsburgh base. Auto body sheets are moving in good volume at the regular 4.15c. Pittsburgh price.

**Strip Steel.**—Some small-lot sales of hot-rolled strip are being made at the regular price, but not much test of the market is expected before the end of the month. Mills have received heavy specifications against low-priced contracts, on which shipments will extend through April. Mills are meeting considerable resistance against present prices on cold-rolled strip. The regular quotations are holding fairly well on the business taken, which is only in small lots. However, buyers in some cases have been able to secure a 2.85c. price, or a concession of \$1 a ton.

**Reinforcing Bars.**—New inquiry is light. Local mills are asking 1.85c., Cleveland, for billet steel bars, but competition is very keen. Rail steel bars are quoted at 1.75c., mill.

**Alloy Steel.**—The demand from the automotive industry continues heavy and the plant of the leading Ohio producer is running at capacity. Some contracts covering consumers' requirements have been placed for the second quarter. No deviation from the new 2.65c. base price is reported.

**Coke.**—One producer has reduced by-product foundry coke 50c. a ton to \$6, Connellsville base. Connellsville foundry coke is inactive, with prices unchanged at \$3.75 to \$5.10. Heating coke is weaker, ranging from \$2.59 to \$2.75.

**Bolts, Nuts and Rivets.**—Bolt and nut business during March showed a slight gain over February. The recent 10 per cent advance on stove bolts brought out heavy specifications, and the \$3 advance on large rivets also stimulated specifications against contracts that expired March 31. The majority of bolt and nut consumers have placed second quarter contracts. Cleveland jobbers have advanced prices 10 per cent to 60 per cent off list on machine and carriage bolts and nuts.

#### Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes.....	3.00c.
Soft steel bars.....	3.00c.
Reinforcing steel bars.....	2.25c. to 2.75c.
Cold-finished rounds and hexagons.....	3.65c.
Cold-finished flats and squares.....	4.15c.
Hoops and bands.....	3.65c.
Cold-finished strip.....	*5.95c.
Black sheets (No. 24).....	3.75c.
Galvanized sheets (No. 24).....	4.40c. to 4.60c.
Blue annealed sheets (No. 10).....	3.25c.
No. 9 annealed wire, per 100 lb.....	\$2.90
No. 9 galvanized wire, per 100 lb.....	3.35
Common wire nails, base per keg.....	2.90

\*Net base, including boxing and cutting to length.

**Old Material.**—The American Steel & Wire Co., which has not been a buyer of scrap for its Cleveland steel plant for several years, bought about 8000 tons of heavy melting steel and compressed sheet scrap during the week. This purchase gave a little life to an otherwise lifeless market and will enable dealers to move scrap that has been backing up because of restricted shipments to other consumers. Dealers have considerable scrap for which they are trying to find an outlet. While the market does not have a firm tone, no concessions from ruling quotations are reported.

*Prices per gross ton, delivered consumers' yards:*

Basic Open-Hearth Grades	
No. 1 heavy melting steel.....	\$13.75 to \$14.00
No. 2 heavy melting steel.....	13.25 to 13.50
Compressed sheet steel.....	12.75 to 13.00
Light bundled sheet stampings.....	11.50 to 11.75
Drop forge flashings.....	12.50 to 13.00
Machine shop turnings.....	9.00 to 9.25
No. 1 railroad wrought.....	11.50 to 12.00
No. 2 railroad wrought.....	13.50 to 14.00
No. 1 busheling.....	11.00 to 11.25
Pipes and flues.....	9.00 to 9.50
Steel axle turnings.....	12.50 to 13.00
Acid Open-Hearth Grades	
Low phosphorus forging crops.....	16.50 to 17.00
Low phosphorus, billet, bloom and slab crops.....	17.00 to 17.50
Low phosphorus sheet bar crops.....	16.50 to 17.00
Low phosphorus plate scrap.....	16.00 to 16.50
Blast Furnace Grades	
Cast iron borings.....	10.00 to 10.25
Mixed borings and short turnings.....	10.00 to 10.25
No. 2 busheling.....	10.00 to 10.25
Cupola Grades	
No. 1 cast.....	16.50 to 17.00
Railroad grate bars.....	11.00 to 12.00
Stove plate.....	12.00 to 12.50
Rails under 3 ft.....	18.00 to 18.50
Miscellaneous	
Railroad malleable.....	15.00 to 15.50
Rails for rolling.....	16.25 to 16.50

## New York

### Pig Iron Competition Keener—Variations in Bids on Railroad Steel

NEW YORK, April 3.—With the opening of navigation on the State Barge Canal only about two weeks away, increasing interest is being shown in water transportation of pig iron. Buffalo shippers are taking steps to bring about an improvement of transshipment facilities both at Beacon, N. Y., and at Jersey City, N. J. Pig iron for New England delivery will, in most cases, be transferred from barge to freight car at Beacon. The freight rate to most New England points from Beacon is \$2 a ton; the transfer charge is understood to be 28c., and the barge rate from Buffalo about \$1.50. The combination rate, counting all charges, is expected to be at least \$1 a ton below the all-rail rate. Pig iron sales for the week by local brokers totaled 10,000 tons, a gain of about 1000 tons over the previous week. Competition is keen and prices are responding to pressure. One good-sized recent purchase brought out prices of \$16, Buffalo, for No. 2X and \$16.50 for No. 1X. While no price lower than \$16 has been reported on No. 2 plain, the aforementioned quotations indicate a willingness to waive silicon differentials. The Singer Mfg. Co. has bought 1500 tons of New York State iron for its St. Johns, Que., plant. The General Electric Co. has closed for about 2000 tons of various grades for delivery at Bayway, N. J., Schenectady, N. Y., and at its New England plants. The Malleable Iron Fittings Co., Branford, Conn., has placed orders against an inquiry for 800 to 1000 tons of malleable iron for barge shipment. Inquiries are more numerous, although many of them are small, indicating a disposition to buy conservatively. Virtually no third quarter demand is reported. The Worthington Pump & Machinery Corporation, New York, is in the market for 307 tons of Bessemer iron for Harrison, N. J., 80 tons of Bessemer for Holyoke, Mass., 450 tons of foundry for Elmwood Place, Ohio, and 400 tons of various grades for Buffalo. Deliveries over the next 10 weeks are called for. The American Locomotive Co., New York, is inquiring for 500 tons, and the New York Air Brake Co. wants 500 tons of charcoal for Watertown, N. Y. The International Motor Co., New York, is in the market for 125 tons of foundry for its New Brunswick, N. J., plant, and the Gifford-Wood Co., Hudson, N. Y., is asking for

prices on 100 tons. A cargo of 3300 tons of Dutch iron is expected to arrive shortly at Bridgeport, Conn. This is said to be the first deep water shipment to that port. Part of the iron has been sold and the remainder will be stocked at the dock of the T. A. D. Jones Coal Corporation.

*Prices per gross ton, delivered New York district:*

Buffalo No. 2 fdy., sil. 1.75 to 2.25	\$20.91 to \$21.91
East. Pa. No. 2 fdy., sil. 1.75 to 2.25	20.39 to 22.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	20.89 to 23.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	21.39 to 23.52

Freight rates: \$4.91 from Buffalo, \$1.39 to \$2.52 from eastern Pennsylvania.

**Finished Steel.**—Specifications against expiring first quarter contracts for plates, shapes and bars were fairly heavy, but some consumers did not specify their full quotas and most of the mills insisted on cancella-

### Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes.....	3.35c.
Soft steel bars and small shapes.....	3.25c.
Iron bars.....	3.24c.
Iron bars, Swedish charcoal.....	7.00c. to 7.25c.
Cold-finished shafting and screw stock—	
Rounds and hexagons.....	3.40c.
Flats and squares.....	3.90c.
Cold-rolled strip, soft and quarter hard,	
5.15c. to 5.40c.	
Hoops.....	4.50c.
Bands.....	4.00c.
Blue annealed sheets (No. 10 gage).....	3.90c.
Long terne sheets (No. 24).....	5.80c.
Standard tool steel.....	12.00c.
Wire, black annealed.....	4.50c.
Wire, galvanized annealed.....	5.15c.
Tire steel, 1½ x ½ in. and larger.....	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and larger.....	3.65c.
Open-hearth spring steel, bases.....	4.50c. to 7.00c.
Machine bolts, cut thread: Per Cent Off List	
¾ x 6 in. and smaller.....	.55 to 60
1 x 30 in. and smaller.....	.50 to 50 and 10
Carriage bolts, cut thread:	
¾ x 6 in. and smaller.....	.55 to 60
¾ x 20 in. and smaller.....	.50 to 50 and 10
Coach screws:	
¾ x 6 in. and smaller.....	.55 to 60
1 x 16 in. and smaller.....	.50 to 50 and 10
Boiler Tubes— Per 100 Ft.	
Lap welded steel, 2-in.....	\$17.33
Seamless steel, 2-in.....	20.24
Charcoal iron, 2-in.....	25.00
Charcoal iron, 4-in.....	67.00

#### Discounts on Welded Pipe

Standard Steel—	Black	Galv.
½-in. butt.....	46	29
¾-in. butt.....	51	37
1-3-in. butt.....	53	39
2½-6-in. lap.....	48	35
7 and 8-in. lap.....	44	17
11 and 12-in. lap.....	37	12

#### Wrought Iron—

½-in. butt.....	5	+19
¾-in. butt.....	11	+9
1-1½-in. butt.....	14	+6
2-in. lap.....	5	+14
3-6-in. lap.....	11	+6
7-12-in. lap.....	3	+16

#### Tin Plate (14 x 20 in.)

	Prime	Seconds
Coke, 100 lb. base box.....	\$6.45	\$6.20
Charcoal, per box—	A	AAA
IC.....	\$9.70	\$12.10
IX.....	12.00	14.25
IXX.....	13.90	16.00

#### Terne Plate (14 x 20 in.)

IC—20-lb. coating.....	\$10.00 to \$11.00
IC—30-lb. coating.....	12.00 to 13.00
IC—40-lb. coating.....	13.75 to 14.25

#### Sheets Box Annealed—Black, C. R. One Pass

	Per Lb.
Nos. 18 to 20.....	3.80c. to 4.00c.
No. 22.....	3.95c. to 4.15c.
No. 24.....	4.00c. to 4.20c.
No. 26.....	4.10c. to 4.30c.
No. 28*	4.25c. to 4.45c.
No. 30.....	4.50c. to 4.70c.

#### Sheets, Galvanized

	Per Lb.
No. 14.....	4.35c.
No. 16.....	4.45c.
No. 18.....	4.35c. to 4.60c.
No. 20.....	4.50c. to 4.75c.
No. 22.....	4.55c. to 4.80c.
No. 24.....	4.70c. to 4.95c.
No. 26.....	4.95c. to 5.20c.
No. 28*	5.20c. to 5.45c.
No. 30.....	5.60c. to 5.85c.

\*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.



tion of the unspecified portions. Shipments of bars at 1.80c., Pittsburgh, plates at 1.95c., Coatesville, and shapes at 1.95c., Bethlehem, on these contracts will extend through April. Somewhat similar conditions exist with respect to the low-priced contracts on sheets and strip steel, so the real test of second quarter prices on a number of products will not come until the latter part of this month or early in May. Quotations on plates, shapes and bars opened last week by the New York Central Railroad covering its second quarter requirements showed interesting variations. On plates, the Lukens Steel Co. quoted 1.85c., Newberry Junction; Alan Wood Iron & Steel Co., 2.18½c., Newberry Junction; Central Iron & Steel Co., 2.13½c., Newberry Junction; Bethlehem Steel Co., 1.90c., West Seneca; Youngstown Sheet & Tube Co., 1.90c., Youngstown; Otis Steel Co., 1.85c., Cleveland; Jones & Laughlin Steel Corporation, 1.90c., Youngstown; Illinois Steel Co., 2c., Chicago. On bars, bids were as follows: Carnegie Steel Co., 1.90c., Pittsburgh or Youngstown; Bethlehem, 1.90c., West Seneca; Bourne-Fuller Co., 1.90c., Cleveland; Donner Steel Co., 1.90c., Buffalo; Jones & Laughlin, Republic Iron & Steel Co. and Youngstown Sheet & Tube Co., all 1.90c., Youngstown; Pittsburgh Crucible Steel Co., 2.16½c., Buffalo; Corri-gan, McKinney Steel Co., 1.85c., Cleveland; Illinois Steel Co., 2c., Chicago. On shapes bids were: Bethlehem, 1.90c., West Seneca; Carnegie, 2.03c., West Seneca; Jones & Laughlin and Republic, 1.90c., Youngstown; Eastern Steel Co., 2.08c., Newberry Junction; Illinois, 2c., Chicago. On forging billets Inland Steel Co. bid \$35, Indiana Harbor; Bethlehem, \$38, West Seneca; Alan Wood Iron & Steel Co., \$42.80, Newberry Junction; Andrews Steel Co., \$41.72, Columbus, Ohio; Illinois, \$38, Chicago; Jones & Laughlin, \$40.89, Youngstown; Pittsburgh Crucible, \$41.53, Buffalo.

Mill prices per lb., delivered New York: Soft steel bars, 2.19c. to 2.24c.; plates, 2.17½c. to 2.22½c.; structural shapes, 2.14½c. to 2.19½c.; bar iron, 2.14c.

**Reinforcing Bars.**—The Truscon Steel Co. will furnish 500 tons of bars for a warehouse in Manhattan. No other large awards have been reported in the last week and the volume of small business has continued rather small. Pending work is showing more activity, but improvement is not as marked as is usually the case at this season. The 1.95c., Pittsburgh, mill price has not entirely disappeared but distributors generally are quoting 2c. on new business. Warehouse prices are unchanged.

**Cast Iron Pipe.**—Prices of Northern producers of bell and spigot pipe are at a level slightly below the delivered prices of Birmingham makers. Southern makers, quoting on a basis of \$29 to \$30 per ton, Birmingham, are unable in most cases to meet the competition of Northern producers, who quote from \$36.25 to \$37.25 per net ton, delivered New York. There is some small municipal business in the market. Troy, N. Y., has awarded 150 tons of water pipe and Albany, N. Y., 3000 tons of water pipe to B. Nicoll & Co. Middlebury, Vt., is reported to have placed about 600 tons of 10-in., and Somerset, Mass., has taken bids on about 100 tons. The city of New York is reported preparing an inquiry for about 5000 tons.

Prices per net ton, delivered New York: Water pipe 6-in. and larger, \$36.25 to \$37.25; 4-in. and 5-in., \$41.25 to \$42.25; 3-in., \$51.25 to \$52.25; Class A and gas pipe, \$4 to \$5 extra.

**Warehouse Business.**—Effective April 2, warehouses in this district have adopted quantity differentials on plates, shapes, bars, diamond pattern floor plates, hoops, bands and blue annealed sheets. The differentials apply to the total tonnage of these products purchased at one time. On 250 to 3999 lb. the base price is applied; 4000 to 7999 lb. a deduction of 15c. per 100 lb.; 8000 to 14,999 lb., a 25c. per 100 lb. deduction, and on 15,000 lb. or more, a 40c. per 100 lb. deduction. On purchases of 249 lb. or less there is a 50c. extra charge on each order. Prices of the products affected by the new quantity differentials have been adjusted by an advance of 1c. per 100 lb. as a convenience in figuring charges. Warehouse prices of zinc sheets have been reduced 1c. per lb. in line with the recent mill reduction. Hot and cold rolled copper sheets have been advanced ¼c. per lb. Shipments from stock were better last month than in either January or February.

**Coke.**—There is a moderate volume of purchasing. Local by-product coke prices are unchanged, but the New England producer has reduced prices 50c. a ton, now quoting \$11 per net ton, delivered in the New England district. An outstanding transaction in this district is the purchase of about 130,000 net tons of by-product coke from the local producer by the Public Service Corporation of New Jersey. Delivered prices on beehive foundry coke are: To northern New Jersey, Jersey City and Newark, \$8.71 to \$8.81 per net ton; to New York and Brooklyn, \$9.59 to \$9.69 per net ton. By-product coke is quoted at \$9 to \$9.40 per net ton, Newark or Jersey City, N. J., and \$10.06 to \$10.29 per ton, New York or Brooklyn.

**Old Material.**—The general tendency of prices on all grades of scrap is downward. No. 1 heavy melting steel is unchanged, but yard grade is off about 25c. per ton, \$10.50 to \$10.75 per ton being paid on deliveries to eastern Pennsylvania consumers. Brokers are offering \$10 per ton, delivered Harrisburg, Pa., for cast borings, and stove plate is being purchased at \$11.50 per ton, delivered to a Phoenixville, Pa., user. Machine shop turnings are being bought at \$10 per ton, delivered Phoenixville. The list of the Pennsylvania Railroad this month offers about 45,000 tons.

Dealers' buying prices per gross ton f.o.b. New York:

No. 1 heavy melting steel.....	\$10.00 to \$10.85
Heavy melting steel (yard).....	6.75 to 7.25
No. 1 heavy breakable cast.....	11.25 to 12.00
Stove plate (steel works).....	8.00 to 8.50
Locomotive grate bars.....	8.00 to 8.50
Machine shop turnings.....	6.50 to 7.25
Short shoveling turnings.....	6.50 to 7.25
Cast borings (blast furnace or steel works).....	6.25 to 7.25
Mixed borings and turnings.....	6.50 to 7.25
Steel car axles.....	15.50 to 16.00
Iron car axles.....	23.75 to 24.75
Iron and steel pipe (1 in. dia., not under 2 ft. long).....	8.25
Forge fire.....	6.75 to 7.00
No. 1 railroad wrought.....	10.00 to 10.50
No. 1 yard wrought, long.....	8.50 to 9.00
Rails for rolling.....	10.00 to 10.50
Cast iron carwheels.....	10.75 to 11.25
Stove plate (foundry).....	8.50 to 9.00
Malleable cast (railroad).....	10.00
Cast borings (chemical).....	11.00 to 11.50

Prices per gross ton, delivered local foundries:

No. 1 machinery cast.....	\$13.75 to \$14.25
No. 1 heavy cast (columns, building materials, etc.), cupola size.....	11.75 to 12.25
No. 2 cast (radiators, cast boilers, etc.).....	11.25 to 11.75

## Reorganization of Canadian Steel Companies Planned

Information received at Toronto, Ont., from Halifax, N. S., is to the effect that a bill to incorporate the Dominion Steel & Coal Corporation, Ltd., has been prepared and will be introduced in the Provincial Legislature. The incorporators of the proposed new company, as named in the bill, are Sir Herbert Holt, J. H. Gundy, George A. Montgomery and C. B. McNaught, all members of the new coal and steel administration that recently gained control of the British Empire Steel Corporation.

The proposed share capital of the new company will be \$65,000,000, divided as follows: 1,000,000 preference class "A" shares of \$40 each and 1,000,000 common class "B" shares of \$25 each. The plan of the new administration, as stated, is upon reorganization to do away with holding companies and to consolidate at least the greatest part of the operations of the British Empire Steel Corporation and its constituents and their subsidiaries under one big operating company, the incorporation of which is sought. In the course of time, it is proposed, the name and structure of the British Empire Steel Corporation will disappear, as will also the financial structure of most of its constituents and their subsidiaries, with some possible exceptions.

Over 50 members and non-members have enrolled for a 10 weeks' course in the metallography of steel, sponsored by the Indianapolis chapter of the American Society for Steel Treating. The course will consist of 10 lectures by Edward J. P. Fisher, research metallurgist of the Diamond Chain & Mfg. Co., Indianapolis, and treasurer of the chapter.



# San Francisco

## 15,000 Tons of Line Pipe Placed—4300 Tons of Shapes for Store

SAN FRANCISCO, March 31 (By Air Mail).—Important developments in the Coast markets during the week included the placing of 4300 tons of structural shapes for the Capwell store in Oakland with the Judson-Pacific Co., the award of 13,387 tons of line pipe for the Pasotex Petroleum Co. to the National Tube Co. and a call for bids by the Santa Fe Railroad, San Francisco, on 700 tons of plates for a carfloat.

Construction activity is holding up well all along the Coast and a number of new projects, involving heavy expenditures, are about ready to come up for figures. Building activity in Los Angeles is ahead of last year.

**Pig Iron.**—Demand for foundry pig iron is spotty and both sales and inquiries are confined to small lots. Little improvement is noted in foundry operations in the southern part of the State due to the quiet conditions prevailing in the oil fields. No changes in prices are noted.

### Prices per gross ton at San Francisco:

*Utah basic .....	\$25.00 to \$26.00
*Utah foundry, sil. 2.75 to 3.25 ..	25.00 to 26.00
**Indian foundry, sil. 2.75 to 3.25 ..	24.00 to 25.00
**German foundry, sil. 2.75 to 3.25 ..	24.25

\*Delivered San Francisco.

\*\*Duty paid. L.o.b. cars San Francisco.

**Bars.**—The largest award of reinforcing bars of the week was 1050 tons to the United States Steel Products Co. for Government work at Cristobal. Awards this week totaled close to 2100 tons. Bookings for the first quarter, as reported each week in THE IRON AGE, totaled 13,432 tons. Bids will be opened next week on 5200 tons for a drainage improvement project in Los Angeles. The majority of both sales and inquiries are confined to small lots. In the San Francisco district 2.25c. on out-of-stock material appears to be the minimum, with some business going at 2.50c. and 2.60c.

**Plates.**—No plate awards of import were noted this week. Pending business totals over 10,500 tons. Prices continue firm at 2.30c., c.i.f.

**Shapes.**—The past week was active in the fabricated steel market. More than 6200 tons was placed, including the 4300 tons for the Capwell store in Oakland. The Llewellyn Iron Works took 400 tons for an apartment in Los Angeles and the Judson-Pacific Co. secured 400 tons for the Medical-Dental Building addition in San Francisco. Several bridge projects for the State of California are pending, totaling close to 2200 tons. Pending projects total 9000 tons. Prices on plain material are firm at 2.35c., c.i.f. Coast ports.

**Cast Iron Pipe.**—Cast iron pipe awards aggregated 1000 tons, bringing the total for the first quarter of the year to 21,000 tons. San Diego, Cal., placed 123 tons of 18-in. class C pipe with the United States Cast Iron Pipe & Foundry Co. Red Bluff, Cal., divided 100 tons between the Pacific States Cast Iron Pipe Co. and the Crane Co., the former securing the 6-in. class B and the latter the 10-in. centrifugal pipe. The United States Cast Iron Pipe & Foundry Co. also took 413 tons of 10 to 24-in. class 150 for Santa Ana, Cal. San Bernardino placed 406 tons of 6 and 8-in. class 250 pipe as follows: 135 tons of 6-in. with the Pacific States Cast Iron Pipe Co. and 271 tons of 8-in. with the American Cast Iron Pipe Co. Bids were opened on 181 tons of 6 and 8-in. class B for the improvement of Foothill Boulevard, Azusa, Cal. Bids will be opened next week

on 127 tons of 6-in. class B for the improvement of Washington Street, Riverside, Cal. New inquiries include 210 tons of 6 and 8-in. class C for the improvement of Willow Street, San Diego, Cal., and 129 tons of 8 to 24-in. class B for a sewer project at San Bernardino, Cal. Prices are weak and \$35 a ton delivered on 6-in. and larger prevails.

**Standard Pipe.**—The largest pipe tonnage placed this year was obtained by the National Tube Co. and involved 200 miles of 8½-in. line pipe of two weights, 25 and 28½ pounds, the tonnage amounting to 13,387 tons. This line is for the Pasotex Pipe Line Co., a subsidiary of the Pasotex Petroleum Corporation, the parent company of which is the Standard Oil Co. of California. Bids will be opened next week on 125 tons of 2 to 8-in. o. d. well casing or Matheson joint pipe for the Armona Public Utility District of Armona, Cal.

# Youngstown

## Steel Production Holds to 80 Per Cent Rate—Tin Plate Demands Heavy

YOUNGSTOWN, April 3.—Viewing the situation solely from the standpoint of volume of business, there is a goodly amount of satisfaction among steel manufacturers in this district, but from the price angle the outlook is less satisfactory. Local producers do not expect that earnings in the quarter just ended will show a gain over those for the last quarter of last year in keeping with the gain in business. While the average of invoice prices will be slightly higher, the principal source of increased revenue will be in the fuller engagement of productive capacity as compared with the last half of last year, with the consequent saving in production costs. Manufacturers are optimistic over the possibility of a continued good demand from the automotive industry. It is believed that some time in this quarter the Ford Motor Co. will get the production of its new model up to full expectations and there will be a demand for steel from that direction which will counterbalance any decline there may be in the demand from other motor car builders.

General operations of the district have slipped off somewhat from the high rate attained about the middle of March, but ingot production is averaging around 80 per cent of capacity, which is well above the average at this time last year, when the district was feeling the ebb from the extreme activity of March of last year. The Youngstown Sheet & Tube Co. is producing ingots at about 75 per cent of capacity, the Republic Iron & Steel Co., about 80 per cent, the Sharon Steel Hoop Co., between 75 and 80 per cent and the Trumbull Steel Co. at full physical capacity. The latter, which has had all eight of its open-hearth furnaces in production, took one off this week, but is replacing the lost production by purchases of cold ingots from the Republic Iron & Steel Co. Union of these companies has not yet been formally effected, but this will be accomplished shortly as it is understood that the legal matters pertaining to merger are almost completed.

Tin plate demands upon the mills of the district are heavy, particularly for the sizes used in the manufacture of condensed milk cans and for oil, paint, tobacco and dry foods. There is full engagement of the mills in the Shenango Valley, while the Trumbull Steel Co. also is enjoying almost full operation. Wire products, notably nails, are not doing particularly well. Jobbers took full advantage of the low prices of last December to load up on nails. Pipe business is more notable for its steadiness than volume; demand lacks urgency and it is only when the monthly check up takes place that makers realize they have been doing something. The Republic Iron & Steel Co. is shipping about 600 tons of 6-in. and 8-in. line pipe to the Lone Star Gas Co., Dallas, Tex.

Sheet mill activity still is high, but it is largely on low-priced business. J. D. Waddell, vice-president Empire Steel Corporation, the combination of six Ohio sheet companies, reports that 58 of the 60 mills of that company are in production. This explains a rather good movement of sheet bars from local produc-

### Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes .....	3.15c.
Soft steel bars .....	3.15c.
Small angles, ½-in. and over .....	3.15c.
Small angles, under ½-in. ....	3.55c.
Small channels and tees, ¾-in. to 2 ¾-in. ..	3.75c.
Spring steel, ¼-in. and thicker .....	5.00c.
Black sheets (No. 24) .....	4.95c.
Blue annealed sheets (No. 10) .....	3.90c.
Galvanized sheets (No. 24) .....	5.50c.
Structural rivets, ½-in. and larger .....	5.65c.
Common wire nails, base per keg .....	\$3.40
Cement coated nails, 100-lb. keg .....	3.40

ers, who, however, are insistent that the weakness prevailing in the Cleveland market has not extended to this district. Activity is lacking in pig iron, notably the steel-making grades, which producers in this and the Shenango Valley districts are unable to ship toward Pittsburgh on account of the competition provided by Pittsburgh district steel companies.

The Republic Iron & Steel Co. will resume shortly the manufacture of railroad spikes after having been out of that market for several years. Spike making machines have been installed at its Brown-Bonnell works and will be started on or about April 15. A complete range of sizes will be made. Both large and small spikes are quoted at \$2.80, base, per 100 lb. mill, with carload lots the minimum mill shipment order. The Youngstown Sheet & Tube Co. is moving ahead steadily with its new \$6,000,000 power plant at the Campbell works. At Sharon, Pa., the Sharon Steel Hoop Co. is making good progress on its new strip mill, the hot mills for which will be furnished by the Morgan Construction Co., Worcester, Mass., and the cold mills by the E. W. Bliss Co. The Carnegie Steel Co. is planning to transfer the manufacture of cotton ties and narrow strips from its Lower Union mills in this city to McDonald, where a new electrically-driven 16-stand 10-in. unit is to be installed.

The Erie Railroad has informed the Interstate Commerce Commission that it is not opposed to the extension of the Pittsburgh, Lisbon & Western Railroad, Pittsburgh Coal Co. subsidiary, which would connect Youngstown with the Ohio River. Other roads which would suffer a loss of business from the construction of this new line have not yet announced intentions as to their course. The steel industry is very much in doubt as to whether the new line will be built and is disposed to see the plan in more definite shape before committing itself to its support.

## Birmingham

### New Steel Business Develops Steadily—Pig Iron Sales at Even Rate

BIRMINGHAM, April 3.—Spot sales of pig iron for the past week were about equal to the recent weekly average. Foundry iron sales are still on a \$16 base. Shipments during March showed a slight increase as compared with the two preceding months. There has been no change in the number of active furnaces during the past three weeks, 18 being in blast. Of this number, nine are on foundry, seven on basic, one on recarburizing iron and one on ferromanganese.

Prices per gross ton, f.o.b. Birmingham district furnaces:

No. 2 foundry, 1.75 to 2.25 sil.....	\$16.00
No. 1 foundry, 2.25 to 2.75 sil.....	16.50
Basic .....	15.00

**Finished Steel.**—New business continues to develop at a steady rate. Inquiries are not heavy, but the volume is sufficient to indicate that a fair amount of business is in prospect. Structural steel fabricators and bar manufacturers have a comfortable amount of work ahead, and inquiries are developing at a fair rate. No changes have been made in open-hearth operations during the past several weeks. The Tennessee company is operating 13 or 14 and the Gulf States Steel Co. four.

**Cast Iron Pipe.**—New business of pressure pipe manufacturers during March was confined largely to small-lot orders from private consumers, but was large enough to keep plants operating at 75 to 80 per cent capacity. Inquiries indicate that municipal buying during April will be in satisfactory volume. Local plants are expected to share in the new contracts being placed by several cities in Michigan and Illinois. Prices are showing more firmness with the base still at \$29 to \$31 for 6 in. and larger.

**Coke.**—With foundry coke consumers' requirements for the second quarter largely covered, the demand has dropped somewhat and sales consist largely of spot orders. Some inquiries are being received on third quarter coke. Around 2000 tons of coke from this district is en route to the West coast by way of Pensacola, Fla. Both spot and contract quotations are unchanged from \$5 base.

**Old Material.**—Consumers are showing very little interest in buying and the market remains quiet and below normal. Shipments are light. Prices are unchanged.

Prices per gross ton, delivered Birmingham district consumers' yards:

Heavy melting steel.....	\$9.50 to \$10.00
Scrap steel rails.....	11.00 to 11.50
Short shoveling turnings.....	8.00 to 8.50
Cast iron borings.....	14.50
Stove plate .....	19.00 to 20.00
Steel axles .....	20.00 to 21.00
Iron axles.....	10.00 to 10.50
No. 1 railroad wrought.....	13.00
Rails for rolling.....	14.50
No. 1 cast.....	12.50 to 13.50
Tramcar wheels .....	12.00 to 13.00
Cast iron carwheels.....	13.50 to 14.00
Cast iron borings, chemical.....	

## St. Louis

### Pig Iron Sales Lighter—Some Grades of Scrap Off 25c. to 50c.

ST. LOUIS, April 3.—The pig iron market quieted down somewhat during the last week, sales of the St. Louis Gas & Coke Corporation totaling about 4500 tons, while a leading Southern interest sold about 850 tons, including one lot of 500 tons. The local maker's principal sale was 2000 tons, and there were two sales of 1000 tons each, one of the latter to an Evansville melter. Shipping orders against contracts are satisfactory to makers. Prices are unchanged.

Prices per gross ton at St. Louis:

No. 2 fdy., sil. 1.75 to 2.25 f.o.b.	
Granite City, Ill. ....	\$19.50 to \$20.00
Northern No. 2 fdy., delivered	20.66
St. Louis .....	20.42
Southern No. 2 fdy., delivered...	20.66
Northern malleable, delivered.....	20.66
Northern basic, delivered.....	

Freight rates: 81c. from Granite City to St. Louis; \$2.16 from Chicago; \$4.42 from Birmingham.

**Coke.**—The market for domestic grades is exceedingly quiet. Dealers are awaiting the announcement of new prices next week. Buying of foundry grades is light.

**Finished Iron and Steel.**—While railroads are issuing no important new inquiries, specifications for tie plates, bolts and spikes are well up to contracts and rails are being called for ahead of specified delivery dates. Orders for second quarter delivery of plates, shapes and bars are coming in, and specifications against contracts are satisfactory. Structural fabricators report business is quiet. Warehouse business is light.

**Old Material.**—Mills are using up stocks of scrap on hand or contracted, and in the absence of buying further weakness has developed. Dealers are buying from one another and from railroad lists only to cover contracts. Heavy melting steel, heavy shoveling steel, No. 2 railroad wrought are 25c. a ton off, and railroad springs, No. 1 machinery cast, railroad malleable, No. 1 railroad cast and stove plate are 50c. lower. Railroad lists include: Baltimore & Ohio, 14,829 tons; Pennsylvania, 4893 tons; Big Four lines, 1220 tons; Chicago,

### Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes.....	3.25c.
Bars, soft steel or iron.....	3.15c.
Cold-finished rounds, shafting and screw stock .....	3.75c.
Black sheets (No. 24).....	4.45c.
Galvanized sheets (No. 24).....	5.25c.
Blue annealed sheets (No. 10).....	3.60c.
Black corrugated sheets (No. 24).....	4.50c.
Galvanized corrugated sheets.....	5.30c.
Structural rivets .....	3.75c.
Boiler rivets .....	3.75c.
Per Cent Off List	
Tank rivets, 3/8-in. and smaller, 100 lb. or more .....	70
Less than 100 lb.....	65
Machine bolts .....	60
Carriage bolts .....	60
Lag screws .....	60
Hot-pressed nuts, square, blank or tapped, 200 lb. or more.....	60
Less than 200 lb.....	50
Hot-pressed nuts, hexagons, blank or tapped, 200 lb. or more.....	60
Less than 200 lb.....	50

Indianapolis & Louisville, 587 tons; Missouri Pacific, 73 carloads; Frisco Lines, 7 carloads.

Prices per gross ton, f.o.b. dealers' yards and delivered St. Louis district consumers' works:

Heavy melting steel.....	\$11.00 to \$11.50
No. 1 locomotive tires.....	12.25 to 12.75
Heavy shoveling steel.....	11.00 to 11.50
Miscellaneous standard-section rails, including frogs, switches and guards, cut apart.....	12.50 to 13.00
Railroad springs.....	13.50 to 14.00
Bundled sheets.....	8.75 to 9.25
No. 2 railroad wrought.....	11.00 to 11.50
No. 1 busheling.....	9.75 to 10.25
Cast iron borings.....	9.00 to 9.50
Iron rails.....	13.00 to 13.50
Rails for rolling.....	12.75 to 13.25
Machine shop turnings.....	7.00 to 7.50
Steel car axles.....	18.50 to 19.00
Iron car axles.....	23.50 to 24.00
Wrought iron bars and transoms.....	21.00 to 21.50
No. 1 railroad wrought.....	10.00 to 10.50
Steel rails, less than 3 ft.....	15.00 to 15.50
Steel angle bars.....	11.50 to 12.00
Cast iron carwheels.....	13.00 to 13.50
No. 1 machinery cast.....	13.50 to 14.00
Railroad malleable.....	10.75 to 11.25
No. 1 railroad cast.....	13.00 to 13.50
Stove plate.....	12.50 to 13.00
Agricultural malleable.....	12.00 to 12.50
Relaying rails, 60 lb. and under.....	20.50 to 23.50
Relaying rails, 70 lb. and over.....	26.50 to 29.00

## Canada

### Pig Iron Sales Have Gained—Railroads to Buy Steel

TORONTO, ONT., April 3.—Business done in pig iron during March showed the highest monthly average this year, while for the first quarter the improvement in sales was 10 to 15 per cent compared with the first quarter of 1927. Advance contract placing was active during the past two weeks with the result that the majority of those melters who place contracts are now covered up to the end of June. One feature of advance buying is that higher tonnages are involved in second quarter orders. Pig iron prices are firm in the Toronto market, but shading continues in Montreal.

Prices per gross ton:

Delivered Toronto *	
No. 1 foundry, sil. 2.25 to 2.75.....	\$23.60
No. 2 foundry, sil. 1.75 to 2.25.....	23.60
Malleable.....	23.60
Delivered Montreal	
No. 1 foundry, sil. 2.25 to 2.75.....	\$24.50 to \$25.00
No. 2 foundry, sil. 1.75 to 2.25.....	24.50 to 25.00
Malleable.....	24.50 to 25.00
Basic.....	24.00
Imported Iron at Montreal Warehouse	
Summerlee.....	33.50
Carroll.....	33.00

**Rails.**—The Canadian Pacific and Canadian National have announced extensive track laying programs for this year. The Canadian Pacific intends to lay 247 miles of new track. The Canadian National Railways purpose to spend \$19,000,000 on general betterments, which will include the purchase of 160,000 tons of new rails to cost upward of \$9,000,000; upward of 7,000,000 tie plates will be purchased at a cost of \$2,350,000, and 1,000,000 rail anchors costing \$255,000 will be ordered. Rail mills at Sault Ste. Marie, Ont., and Sydney, N. S., are now running practically at capacity and will continue at this rate well into June. New business to be placed will supply sufficient business to keep these mills in operation practically through the year.

**Structural Steel.**—Structural steel sales show steady improvement. Some large tonnages are involved in proposed new structures in the leading cities of the Dominion. The Robert Simpson Co., Toronto, has announced a building program, for which upward of 5000 tons of steel will be required. It is estimated that 25,000 tons of structural steel will be required for Canadian Pacific and Canadian National bridge building operations for Ontario and Quebec.

**Old Material.**—Sales show improvement. During the past week or 10 days, second quarter buying was strongly featured in addition to a good demand on spot delivery account. While much of the new business is coming from Hamilton consumers, melters throughout Ontario are buying more extensively. Export demand for old material is improving steadily and large ship-

ments are now being made to United States buyers. Prices continue firm but unchanged.

Dealers' buying prices:

Per Gross Ton		Toronto	Montreal
Heavy melting steel.....	\$9.00	\$8.00	
Rails, scrap.....	10.00	10.00	
No. 1 wrought.....	9.00	11.00	
Machine shop turnings.....	7.00	6.00	
Boiler plate.....	7.00	7.00	
Heavy axle turnings.....	7.50	7.50	
Cast borings.....	7.50	6.00	
Steel turnings.....	7.00	6.50	
Wrought pipe.....	5.00	6.00	
Steel axles.....	14.00	19.00	
Axles, wrought iron.....	16.00	21.00	
No. 1 machinery cast.....	.....	16.00	
Stove plate.....	.....	12.00	
Standard carwheels.....	.....	14.50	
Malleable.....	.....	13.00	
Per Net Ton			
No. 1 machinery cast.....	15.00	.....	
Stove plate.....	9.00	.....	
Standard carwheels.....	13.00	.....	
Malleable scrap.....	13.00	.....	

## Cincinnati

### Pig Iron Prices Weaken—Black Sheets and Nails Lower

CINCINNATI, April 3.—Severe competition between furnaces in northern and southern Ohio for second quarter pig iron business in this district has resulted in the shading of prices. On sizable inquiries Lake Erie producers are reported to have quoted \$16.50, base Cleveland, with a silicon differential of 25c. a ton and in at least one instance the base price was under that figure. An Ironton maker in the past week sold 500 tons of high phosphorus iron to a Hamilton, Ohio, company at about 50c. less than the regular schedule of \$19, base furnace. The seller, however, insists that this constituted a special transaction which does not disturb the price structure, which has stood at \$19 for a number of months. Other outstanding sales have been 2000 tons of northern Ohio foundry to a melter in this territory, 500 tons of northern Ohio foundry iron to a Hamilton, Ohio, consumer, and 800 tons of malleable to a Kokomo, Ind., company. Inquiries are more numerous and include 3000 tons for an Ohio company, 1000 tons for a Louisville melter and 450 tons for the Laidlaw Works of the Worthington Pump & Machinery Corporation. Tennessee and Alabama irons are quoted at \$16, base Birmingham, but sales north of the Ohio River have been unimportant.

Prices per gross ton, delivered Cincinnati:

So. Ohio fdy., sil. 1.75 to 2.25.....	\$20.89
So. Ohio malleable.....	\$20.14 to 20.89
Alabama fdy., sil. 1.75 to 2.25.....	19.69
Alabama fdy., sil. 2.25 to 2.75.....	20.19
Tennessee fdy., sil. 1.75 to 2.25.....	19.69
Southern Ohio silvery, 8 per cent.....	26.89

Freight rates, \$1.89 from Ironton and Jackson, Ohio; \$3.69 from Birmingham.

**Finished Material.**—Interest in the past week has centered largely in second quarter prices, which in certain directions are failing to stand up under test. Black sheets, which have been quoted consistently at 2.90c., base Pittsburgh, for a number of weeks, are being purchased by large consumers at \$3 a ton under that figure, although manufacturers claim to be holding to the

### Warehouse Prices, f.o.b. Cincinnati

Base per Lb.	
Plates and structural shapes.....	3.40c.
Bars, soft steel or iron.....	3.30c.
New billet reinforcing bars.....	3.15c.
Rail steel reinforcing bars.....	3.00c.
Hoops.....	4.00c. to 4.25c.
Bands.....	3.95c.
Cold-finished rounds and hexagons.....	3.85c.
Squares.....	4.35c.
Black sheets (No. 24).....	4.05c.
Galvanized sheets (No. 24).....	4.90c.
Blue annealed sheets (No. 10).....	3.60c.
Structural rivets.....	3.85c.
Small rivets.....	.65 per cent off list
No. 9 annealed wire, per 100 lb.....	\$3.00
Common wire nails, base per keg.....	2.95
Cement coated nails, base 100 lb. keg.....	2.95
Chain, per 100 lb.....	7.55
Net per 100 Ft.	
Lap-welded steel boiler tubes, 2-in.....	\$18.00
4-in.....	38.00
Seamless steel boiler tubes, 2-in.....	19.00
4-in.....	39.00



regular schedule in accepting orders for small lots. Irregularities also have cropped out in common wire nails, which are being offered in the southern Ohio district by an Ironton, Ohio, mill at \$2.55 per keg, base Ironton. While on the surface this appears to be a concession of only 10c. a keg, the reduction actually is more than that when figured on a Pittsburgh base because of the freight differential in favor of Ironton. Furthermore, at Ohio River points to which delivery can be made by barge from Ironton, jobbers and consumers are obtaining nails at a price equivalent to about \$2.40, Pittsburgh. Aside from nails, the wire goods market has been fairly firm and bookings have been of moderate volume. The number of orders for fencing has been normal for this time of the year. Outstanding in structural steel has been the award to the McClintic-Marshall Co. of 18,000 tons by the Big Four Railroad for a bridge spanning the Ohio River at Louisville, Ky. This is the largest structural steel job placed in this district in many years. Bars, structural shapes and plates are quoted at 1.90c. to 2c., base Pittsburgh, and specifications against old contracts at lower prices have been heavy. New orders, however, have not been impressive. Sheet mills report that bookings have continued to be large and are well diversified, although automobile companies are the most important single factor from a buying standpoint. Automobile body sheets are steady at 4.15c., base Pittsburgh, galvanized at 3.75c. and blue annealed stock at 2.10c.

The Stacey Mfg. Co., Cincinnati, will receive this week the first barge load of structural steel to be shipped by water to a steel consumer in Cincinnati. The shipment, which is being made by the Carnegie Steel Co., consists of about 830 tons of material to be fabricated for a gas holder to be erected at Granite City, Ill. The new river rail terminal constructed by the Cincinnati River Rail Terminal Co. will be utilized for transferring the steel from barges to railroad cars for delivery to the Stacey plant.

**Reinforcing Bars.**—New billet bars are quoted at 1.90c. to 2c., base Pittsburgh, and rail steel stock at 1.80c. to 1.85c., base mill.

**Warehouse Business.**—Shipments out of local warehouses in the first quarter of 1928 were slightly less than in the corresponding period in 1927. Prices are firm and unchanged.

**Coke.**—Weakness has appeared in both by-product and beehive coke prices. Makers of by-product coke at Indianapolis, Ashland and Portsmouth have announced a reduction of 50c. a ton on foundry grades, effective April 1, the new quotation calling for \$7 per net ton f.o.b. ovens, or \$9.02, delivered Cincinnati. Domestic grades are now selling at \$3.50, ovens, for walnut; \$4.50 for egg, and \$3 for No. 2 nut. This represents a drop of \$1.50 a ton on walnut and \$1 on egg. At Detroit by-product foundry coke remains at \$8.50, Detroit ovens, for outside shipment and \$9, delivered in Detroit, but egg and nut domestic coke have been cut to \$5.50, Detroit ovens, for outside delivery and to \$6, delivered in Detroit. Beehive foundry coke from the Wise County district is being sold at \$4.50, ovens, with furnace coke bringing \$3.75, but these prices are weak and concessions of 25c. a ton are likely to be made in the immediate future. In the New River district reports are current that at least one producer is quoting \$6.50, ovens, a drop of 50c. a ton.

*Foundry coke prices per net ton, delivered Cincinnati:* By-product coke, \$9.02; Wise County coke, \$7.09 to \$7.59; New River coke, \$9.09 to \$9.59. Freight rates, \$2.14 from Ashland, Ky.; \$2.59 from Wise County and New River ovens.

**Old Material.**—There has been practically no change in the past week. Steel plants continue to release ship-

ments on current contracts at a satisfactory rate, but forward buying is negligible. Prices are showing more stability, but because of the absence of transactions quotations in many items are regarded as nominal.

*Dealers' buying prices per gross ton f.o.b. cars, Cincinnati:*

Heavy melting steel.....	\$11.00 to \$11.50
Scrap rails for melting.....	11.75 to 12.25
Loose sheet clippings.....	8.50 to 9.00
Bundled sheets.....	9.50 to 10.00
Cast iron borings.....	8.00 to 8.50
Machine shop turnings.....	7.50 to 8.00
No. 1 busheling.....	10.00 to 10.50
No. 2 busheling.....	7.00 to 7.50
Rails for rolling.....	12.50 to 13.00
No. 1 locomotive tires.....	12.75 to 13.25
No. 1 railroad wrought.....	10.00 to 10.50
Short rails.....	15.75 to 16.25
Cast iron carwheels.....	12.25 to 12.75
No. 1 machinery cast.....	15.50 to 16.00
No. 1 railroad cast.....	13.00 to 13.50
Burnt cast.....	7.50 to 8.00
Stove plate.....	8.25 to 8.75
Brake shoes.....	9.50 to 10.25
Railroad malleable.....	12.00 to 12.50
Agricultural malleable.....	11.50 to 12.00

## Buffalo

### Lower Prices on Scrap Sales— Steel Demand Sustained

**BUFFALO, April 3.**—The pig iron market is very quiet. One company with a plant east of here and another in Buffalo is inquiring for 700 to 800 tons of foundry, malleable and Bessemer grades, but this is about the only inquiry aside from carload lots. The General Electric Co. is believed to have purchased the 2900 tons it inquired for from furnaces outside of this district. One maker continues to quote \$17 for delivery in the district or outside, while the others are holding at \$17 in the district. A small lot of 3.50 to 4 per cent silicon foundry was sold at \$20.25, furnace.

*Prices per gross ton, f.o.b. furnace:*

No. 2 plain fdy., sil. 1.75 to 2.25.....	\$17.00
No. 2 foundry, sil. 2.25 to 2.75.....	17.50
No. 1X foundry, sil. 2.75 to 3.25.....	18.50
Malleable, sil. up to 2.25.....	\$17.00 to 17.50
Basic.....	16.50 to 17.00
Lake Superior charcoal.....	27.28

**Old Material.**—Several sales of No. 1 heavy melting steel have been made at \$15 and a considerable tonnage of No. 2 heavy melting steel has been sold at \$13.25. Prices realized on this material are lower than the market has been recently. More buying within the near future is seen by the dealers in view of the continuity of mill operation around 80 per cent, and the comparative shortage of material in dealers' yards. Most of the shipments are going direct to the consumers from outside sources. There have been a few sales of No. 1 machinery cast around \$15. This was strictly No. 1 grade.

*Prices per gross ton, f.o.b. Buffalo consumers' plants:*

Basic Open-Hearth Grades	
No. 1 heavy melting steel.....	\$14.50 to \$15.00
No. 2 heavy melting steel.....	12.75 to 13.25
Scrap rails.....	13.75 to 14.25
Hydraulic compressed sheets.....	13.00 to 13.50
Hand bundled sheets.....	9.00 to 9.50
Drop forge flashings.....	12.00 to 12.50
No. 1 busheling.....	13.25 to 13.75
Heavy steel axle turnings.....	12.50 to 12.75
Machine shop turnings.....	8.25 to 8.75
Acid Open-Hearth Grades	
Railroad knuckles and couplers.....	15.50 to 16.00
Railroad coil and leaf springs.....	15.50 to 16.00
Rolled steel wheels.....	15.50 to 16.00
Low phosphorus billet and bloom ends.....	17.00 to 17.50
Electric Furnace Grades	
Heavy steel axle turnings.....	12.75 to 13.25
Short shoveling steel turnings.....	10.75 to 11.25
Blast Furnace Grades	
Short shoveling steel turnings.....	10.50 to 11.00
Short mixed borings and turnings.....	9.50 to 10.00
Cast iron borings.....	9.75 to 10.25
No. 2 busheling.....	9.00 to 9.50
Rolling Mill Grades	
Steel car axles.....	17.00 to 17.50
Iron axles.....	22.00 to 23.00
No. 1 railroad wrought.....	12.50 to 13.00
Cupola Grades	
No. 1 machinery cast.....	14.50 to 15.00
Stove plate.....	13.00 to 13.50
Locomotive grate bars.....	12.00 to 12.50
Steel rails, 3 ft. and under.....	16.50 to 17.00
Cast iron carwheels.....	13.00 to 13.50
Malleable Grades	
Railroad.....	15.00 to 15.25
Agricultural.....	15.00 to 15.25
Industrial.....	15.00 to 15.25

### Warehouse Prices, f.o.b. Buffalo

	Base per lb.
Plates and structural shapes.....	3.40c.
Soft steel bars.....	3.30c.
Reinforcing bars.....	2.75c.
Cold-finished flats, squares and hexagons.....	4.45c.
Rounds.....	3.95c.
Cold-rolled strip steel.....	5.85c.
Black sheets (No. 24).....	4.30c.
Galvanized sheets (No. 24).....	5.15c.
Blue annealed sheets (No. 10).....	3.80c.
Common wire nails, base per keg.....	\$3.65
Black wire, base per 100 lb.....	3.90

**Finished Iron and Steel.**—Prices of bars, shapes and plates are holding firm and specifications have been excellent during the past few weeks, lending weight to the expectation that the second quarter will see some good business in these departments. The prevailing price is 1.95c. to 2c., depending on the nature and size of the tonnages. Sheets are firm at 2.90c. for black; 3.75c. for galvanized and 4.15c. for automobile body. A Buffalo maker has taken 900 tons of reinforcing bars for a Rochester, N. Y., high school and a 190-ton garage job for Rochester has been figured. Reinforcing bar makers report the closing of numerous smaller jobs, running about 50 tons each. Mill operations are averaging 80 to 85 per cent.

## Boston

### Foundry Coke Reduced 50c. a Ton —Low Pig Iron Prices

BOSTON, April 3.—Pig iron sales the past week approximated 7000 tons, of which 4500 tons was sold by the Mystic furnace. Included in the Mystic sales were 1000 tons of No. 2 plain, 1000 tons of No. 2X, 500 tons of No. 1X and smaller tonnages, not all for New England consumption, however. The company took all the General Electric Co. business with the exception of the low phosphorus iron. Some low prices were made during the week. The Universal Winding Co., Providence, R. I., bought several hundred tons of No. 2X at a reported price of \$20.50 a ton, delivered, or \$18.50 at furnace, and 400 tons Buffalo No. 1X on a water freight at \$21.28, delivered, or \$17, furnace. The No. 1X, on a \$4.91 all-rail freight rate would have cost the consumer \$21.91. Buffalo iron, figured on an all-rail rate, is still available at \$16 a ton, furnace, for No. 2 plain and \$16.50 for No. 2X.

Prices of foundry iron per gross ton, delivered to most New England points:

Buffalo, sil. 1.75 to 2.25	\$20.91 to \$21.91
Buffalo, sil. 2.25 to 2.75	21.41 to 22.41
East. Penn., sil. 1.75 to 2.25	23.15 to 23.65
East. Penn., sil. 2.25 to 2.75	23.65 to 24.15
Virginia, sil. 1.75 to 2.25	25.71
Virginia, sil. 2.25 to 2.75	26.21
Alabama, sil. 1.75 to 2.25	22.91 to 24.77
Alabama, sil. 2.25 to 2.75	23.41 to 25.27

Freight rates: \$4.91 from Buffalo, \$3.65 from eastern Pennsylvania, \$5.21 all rail from Virginia, \$6.91 to \$8.77 from Alabama.

**Bars.**—Mill representatives are securing more steel bar business, although the average consumer is buying in small lots. The only prospective reinforcing bar business of importance is 4000 tons for the New England Building, Boston, which probably will be closed within a week. Current buying is in 5 to 50-ton lots, mostly 5 to 25 tons, at 1.90c. to 1.95c. per lb., base

### Warehouse Prices, f.o.b. Boston

	Base per Lb.
Plates	3.365c.
Structural shapes—	
Angles and beams	3.365c.
Tees	3.365c.
Zees	3.465c.
Soft steel bars and small shapes	3.265c.
Plats, hot-rolled	4.15c.
Reinforcing bars	3.265c. to 3.54c.
Iron bars—	
Refined	3.265c.
Best refined	4.60c.
Norway, rounds	6.60c.
Norway, squares and flats	7.10c.
Spring steel—	
Open-hearth	5.00c. to 16.00c.
Crucible	12.00c.
Tire steel	4.50c. to 4.75c.
Bands	4.015c. to 5.00c.
Hoop steel	5.50c. to 6.00c.
Cold rolled steel—	
Rounds and hexagons	*3.45c. to 5.45c.
Squares and flats	*3.95c. to 6.95c.
Toe calk steel	6.00c.
Rivets, structural or boiler	4.50c.
	Per Cent Off List
Machine bolts	.50 and 5
Carriage bolts	.50 and 5
Lag screws	.50 and 5
Hot-pressed nuts	.50 and 5
Cold-punched nuts	.50 and 5
Stove bolts	.70 and 10

\*Including quantity differentials.

Pittsburgh. The local out-of-stock price of 2.90c. per lb., base, is being shaded.

**Cold-Rolled Strip.**—Orders for cold-rolled strip for second quarter shipment are coming in more freely, and mills in general are holding to 3.15c. per lb., base Pittsburgh. The American Steel & Wire Co., Worcester, Mass., quotes 3.30c. per lb., base, on lots of 1 to 3 tons.

**Coke.**—The New England Coal & Coke Co. and the Providence Gas Co. have reduced by-product foundry coke 50c. a ton to \$11, delivered within a \$3.10 freight rate zone. Specifications by foundries against first half contracts are more numerous than at any previous time this year, but individual tonnages are small. Domestic coke also has been reduced 50c. a ton to \$8 a ton on cars at Everett ovens. The New England Coal & Coke Co. has also reduced retail domestic coke prices 50c. a ton.

**Warehouse Business.**—Business is only fair. Consumers continue to order material on a hand-to-mouth basis, and the weekly warehouse turnover of stock is smaller than it was a month ago. Competition for business remains keen, but prices hold firm owing to the attitude of steel mills. Warehouse stocks are broken and there is considerable buying from each other to complete orders.

**Old Material.**—Brokers report no difficulty in selling material, but some difficulty in securing scrap at prevailing prices. Weirton, W. Va., is taking quite a lot of New England scrap, and a fair tonnage was shipped to the Pittsburgh territory the past week. The Mystic Iron Works is still in the market for stove plate and miscellaneous material. The market for railroad wrought is easier, and offers of \$9.10 for No. 1 heavy melting steel seem to have disappeared, \$9 being the prevailing price. Slightly lower prices are noted on borings and turnings for steel plants, car axles and rails for rerolling, but in contrast there is a little firmer market for skeleton, forged flashings and chemical borings. Textile machinery cast continues to move slowly, but there was a fair turnover in No. 1 machinery cast the past week at slightly higher prices. Long bundled cotton ties are moving at \$6 a ton on cars shipping point, and heavy cast at \$11.

Buying prices per gross ton f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	\$9.00
Scrap T rails	\$8.00 to 8.50
Scrap girder rails	7.50 to 8.00
No. 1 railroad wrought	9.50 to 10.00
No. 1 yard wrought	7.50 to 8.00
Machine shop turnings	5.00 to 5.50
Cast iron borings (steel works and rolling mill)	6.00 to 6.25
Bundled skeleton, long	5.75 to 6.25
Forge flashings	6.25 to 6.75
Blast furnace borings and turnings	5.75 to 6.00
Forged scrap	6.00 to 6.50
Shafting	13.00 to 13.50
Steel car axles	15.00 to 15.25
Wrought pipe (1 in. in diameter, over 2 ft. long)	7.50 to 8.25
Rails for rolling	10.00 to 10.25
Cast iron borings, chemical	9.50 to 10.00

Prices per gross ton delivered consumers' yards:

Textile cast	\$13.50 to \$14.00
No. 1 machinery cast	15.00 to 15.50
No. 2 machinery cast	13.00 to 13.50
Stove plate	9.50 to 10.00
Railroad malleable	13.00 to 13.50

Boilers and finishers in mid-Western puddle mills plan to abandon the sliding wage scale agreement which has been in effect 40 years. At the annual wage conference with manufacturers to be held in May at Middletown, Ohio, workers will submit a proposal that a flat rate system be adopted. Introduction of mechanical puddling devices, the dwindling number of puddlers and other changed conditions are responsible for the request.

A general conference of consumers, technicians, distributors and manufacturers interested in coated abrasive products will be held at the Department of Commerce, Washington, on April 11, to consider drafting a simplified practice recommendation for this commodity.

The Newton Steel Co. plans to install continuous rolling mills at its plant at Newton Falls, Trumbull County, Ohio.

## NON-FERROUS METAL MARKETS

The Week's Prices		Apr. 3	Apr. 2	Mar. 31	Mar. 30	Mar. 29	Mar. 28
Cents per Pound for Early Delivery	Lake copper, New York.....	14.30	14.30	14.30	14.30	14.25	14.25
	Electrolytic copper, N. Y.*..	14.12½	14.12½	14.12½	14.12½	14.00	14.00
	Straits tin, spot, N. Y. ....	53.50	53.75	53.75	53.87½	53.12½	53.00
	Lead, New York.....	6.10	6.10	6.00	6.00	6.00	6.00
	Lead, St. Louis.....	5.95	5.95	5.85	5.85	5.85	5.85
	Zinc, New York.....	6.07½	6.05	6.00	6.00	6.05	6.07½
	Zinc, St. Louis.....	5.72½	5.70	5.65	5.65	5.70	5.72½

\*Refinery quotation; delivered price ¼c. higher.

NEW YORK, April 3.—Copper sales have been very heavy and prices have advanced. Purchases of tin have been fairly large, with quotations firm. Lead has been advanced and buying has been quite heavy. Demand for zinc is light and prices are steady.

**Copper.**—Purchases of copper, both for foreign and domestic consumption, were so heavy last week that the March total sales are probably second to the largest on record. Estimates place the amount which changed hands at 150,000 to 160,000 tons, with 60,000 to 70,000 tons of this sold for export. All the domestic business was done at 14.12½c., delivered in the Connecticut Valley. The price was then advanced by all producers to 14.25c., delivered, and since then the domestic market has been very quiet. Export business is still being done on the basis of 14.50c., c.i.f. European ports, which has been the official quotation of Copper Exporters, Inc., since early in December. Buying for foreign consumption continues heavy, the total for yesterday and today having been at least 6000 tons. The Lake copper market is quiet but firm at 14.30c., delivered.

**Copper Averages.**—The average price of Lake copper for the month of March, based on daily quotations in THE IRON AGE, was 14.24c. The average price of electrolytic copper was 13.90c., refinery, or 14.15c., delivered in the Connecticut Valley.

**Tin.**—Sales for the week ended Saturday, March 31, were 1100 to 1200 tons. There was some consumer buying, but most of it was business done between

dealers. The principal buying was for April-May-June delivery, with other positions neglected. There is very little interest among the rank and file of consumers. Yesterday, Monday, the market was quiet, with about 150 tons sold, and today there has been very little activity, with spot Straits tin quoted at 53.50c., New York. Prices in London today were but little changed from those of a week ago, with spot standard quoted at £239 15s., future standard at £239 10s. and spot Straits at £243 15s. per ton, and the market easy. The Singapore price today was £244. Chief features of March statistics are the large shipments of Straits tin, 8005 tons, and small Banca shipments of only 513 tons. Deliveries into American consumption were unusually large at 7960 tons, with metal in stock and landing on March 31 at 2078 tons. The total visible supply on April 1 was 15,586 tons, a decrease of 2059 tons from that on March 1. Metal in sight for use in United States was 9707 tons.

**Lead.**—Partly because of the gradually strengthening market in the West and a fairly heavy demand from all quarters, lead has finally advanced. The American Smelting & Refining Co. yesterday raised its contract price from 6c. to 6.10c., New York, and in the West the metal sold as high as 5.95c., St. Louis, which is now regarded as the market in that district.

**Zinc.**—Buying of prime Western zinc is not active, but prices are turning stronger. This is due largely to the ore situation, which at present is the key to the market. It is believed by metal producers that the sellers of ore are sincere in restricting output. Statistics for last week indicate this, with both production and sales at the lowest point in some weeks. The price was unchanged at \$38, Joplin. Slab zinc sold as low as 5.65c., St. Louis, last week, but, with the clearer knowledge of the ore situation, prices this week are firmer

### Metals from New York Warehouse

#### Delivered Prices Per Lb.

Tin, Straits pig.....	55.00c. to 56.00c.
Tin, bar .....	57.00c. to 58.00c.
Copper, Lake .....	15.25c.
Copper, electrolytic .....	15.00c.
Copper, casting .....	14.25c.
Zinc, slab .....	6.75c. to 7.25c.
Lead, American pig .....	7.00c. to 7.50c.
Lead, bar .....	9.25c. to 10.25c.
Antimony, Asiatic .....	12.25c. to 12.75c.
Aluminum No. 1 ingot for remelting (guaranteed over 99 per cent pure) .....	25.00c. to 26.00c.
Aluminum ingots, No. 12 alloy .....	24.00c. to 25.00c.
Babbitt metal, commercial grade .....	30.00c. to 40.00c.
Solder, ½ and ½ .....	34.50c. to 35.50c.

### Metals from Cleveland Warehouse

#### Delivered Prices Per Lb.

Tin, Straits pig.....	59.75c.
Tin, bar .....	61.75c.
Copper, Lake .....	14.85c.
Copper, electrolytic .....	14.85c.
Copper, casting .....	14.00c.
Zinc, slab.....	7.50c.
Lead, American pig.....	6.85c.
Antimony, Asiatic .....	16.00c.
Lead, bar.....	9.25c.
Babbitt metal, medium grade.....	19.75c.
Babbitt metal, high grade.....	63.50c.
Solder, ½ and ½.....	34.50c.

### Rolled Metals from New York or Cleveland Warehouse

#### Delivered Prices, Base Per Lb.

<b>Sheets—</b>	
High brass .....	18.50c. to 19.25c.
Copper, hot rolled.....	23.00c. to 24.00c.
Copper, cold rolled, 14 oz. and heavier, .....	25.50c. to 26.50c.
<b>Seamless Tubes—</b>	
Brass .....	23.37½c. to 24.37½c.
Copper .....	24.50c. to 25.50c.
Brazed Brass Tubes.....	26.50c. to 27.50c.
Brass Rods .....	16.25c. to 17.25c.

#### From New York Warehouse

#### Delivered Prices, Base Per Lb.

Zinc sheets (No. 9), casks.....	9.00c. to 9.50c.
Zinc sheets, open.....	10.00c. to 10.50c.

## Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper products are unchanged. Quotations on lead full sheets and zinc sheets have not been revised since the reductions of Feb. 21 and March 26, respectively.

### List Prices, Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight up to 75c. per 100 Lb. Allowed on Shipments of 500 Lb. or Over

<b>Sheets—</b>	
High brass .....	18.75c.
Copper, hot rolled .....	22.75c.
Zinc .....	8.50c.
Lead (full sheets) .....	9.75c. to 10.00c.
<b>Seamless Tubes—</b>	
High brass .....	23.62½c.
Copper .....	24.50c.
<b>Rods—</b>	
High brass .....	16.50c.
Naval brass .....	19.25c.
<b>Wire—</b>	
Copper .....	15.75c.
High brass .....	19.25c.
Copper in Rolls .....	21.75c.
Brazed Brass Tubing .....	26.75c.

### Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide.....	33.00c.
Tubes, base .....	42.00c.
Machine rods .....	34.00c.



## Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Consumers' Doors in City Limits)

	Base per Lb.
<b>Sheets—</b>	
High brass .....	18.75c.
Copper, hot rolled.....	22.75c.
Copper, cold rolled, 14 oz. and heavier.....	25.00c.
Zinc .....	10.00c.
Lead, wide.....	9.75c.
<b>Seamless Tubes—</b>	
Brass .....	25.12½c.
Copper .....	26.00c.
Brazed Brass Tubes.....	26.75c.
Brass Rods .....	16.50c.

at 5.72½c., St. Louis, or 6.07½c., New York, for April delivery, with premiums on futures.

**Nickel.**—Wholesale lots of ingot nickel are quoted at 35c., with shot nickel at 36c. and electrolytic nickel at 37c. per lb.

**Antimony.**—The market is weaker and Chinese metal for all positions is quoted at 9.50c., New York, duty paid. This is due to lack of demand by consumers and eagerness to sell by dealers. This price is said to figure back to a level close to cost of production in China.

**Aluminum.**—Virgin metal, 98 to 99 per cent pure, is quoted at 23.90c. per lb., delivered.

## Non-Ferrous Metals at Chicago

CHICAGO, April 3.—Sales are moderately active. Prices for copper are steady. Tin has advanced and lead and zinc have weakened. A fair volume of business is being done in old metals.

Prices, per lb., in carload lots: Lake copper, 14.25c.; tin, 55.50c.; lead, 5.95c.; zinc, 5.80c.; in less-than-carload lots, antimony, 12.50c. On old metals we quote copper wire, crucible shapes and copper clips, 10.50c.; copper bottoms, 9.50c.; red brass, 9.25c.; yellow brass, 7c.; lead pipe, 4.75c.; zinc, 3.25c.; pewter, No. 1, 30c.; tin foil, 36c.; block tin, 45c.; aluminum, 11.75c.; all being dealers' prices for less-than-carload lots.

## REINFORCING STEEL

### Building in Boston Will Take 4000 Tons—Awards of 9000 Tons

**A**WARDS of concrete reinforcing bars, as reported to THE IRON AGE in the last week, amounted to 9000 tons. None of the lettings was of outstanding size. Included in the 6000 tons called for in new projects was a building at Boston requiring 4000 tons. Awards follow:

NEW YORK, 500 tons, warehouse, to Truscon Steel Co.  
ROCHESTER, N. Y., 900 tons, Benjamin Franklin High School, to a Buffalo maker.  
PHILADELPHIA, 800 tons, addition to Alden Park Manor, reported to Concrete Steel Co.  
HARRISBURG, PA., 350 tons, Market Street subway, to McClintic-Marshall Co.  
PITTSBURGH, 100 tons, Stanley East Liberty Theater, to Carlem Engineering Co.  
QUANTICO, VA., 600 tons, Marine barracks, to McClintic-Marshall Co.  
WAYCROSS, GA., 125 tons, hotel building, to Connors Steel Co., Birmingham.  
SHREVEPORT, LA., 700 tons, Market Street viaduct, to Laclede Steel Co.  
ELYRIA, OHIO, 325 tons, to Bourne-Fuller Co.  
CHICAGO, 1100 tons, Produce Market, to Joseph T. Ryerson & Son.  
CHICAGO, 100 tons, addition to building for Sears, Roebuck & Co., to Joseph T. Ryerson & Son.  
CHICAGO, 570 tons of rail steel bars, apartment building at 14 West Elm Street, to Calumet Steel Co.  
ST. LOUIS, 190 tons, metropolitan police gymnasium, to Laclede Steel Co.  
POPLAR BLUFF, MO., 110 tons, Court House, to Laclede Steel Co.  
SAN DIEGO, 100 tons, pier foot of E Street, to unnamed jobber.  
LONG BEACH, CAL., 115 tons, administration building for Board of Education, to unnamed jobbers.  
SEATTLE, 100 tons, apartment building, Boren and Olive Streets, to Pacific Coast Steel Co.  
SEATTLE, 100 tons, garage, Ninth and Virginia Streets, to Pacific Coast Steel Co.  
SAN FRANCISCO, 250 tons, factory, Tenth and Howard Streets, to unnamed jobber.  
OAKLAND, CAL., 100 tons, garage, Hobart and Harrison Streets, to unnamed jobber.

## Old Metals, Per Lb., New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators and the selling prices are those charged consumers after the metal has been properly prepared for their use.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible.....	12.00c.	13.50c.
Copper, heavy and wire.....	11.75c.	12.875c.
Copper, light and bottoms...	10.00c.	11.25c.
Brass, heavy .....	7.00c.	8.50c.
Brass, light .....	6.00c.	7.50c.
Heavy machine composition.	9.50c.	10.625c.
No. 1 yellow brass turnings.	7.75c.	9.00c.
No. 1 red brass or composition turnings .....	8.75c.	9.75c.
Lead, heavy .....	5.00c.	5.50c.
Lead, tea .....	4.00c.	4.50c.
Zinc .....	3.00c.	3.50c.
Sheet aluminum .....	12.50c.	14.50c.
Cast aluminum .....	12.50c.	14.00c.

SEATTLE, WASH., 225 tons, physics building, University of Washington, to Pacific Coast Steel Co.

SEATTLE, 190 tons, Fire Department headquarters, to Pacific Coast Steel Co.

SPOKANE, WASH., 123 tons, viaduct over Great Northern Railroad, to unnamed jobber.

SPRINGFIELD, ORE., 150 tons, bridge over McKenzie River; general contract to Lindstrom & Feigeson.

CRISTOBAL, CANAL ZONE, 1050 tons, Panama Canal, to United States Steel Products Co.

## Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

BOSTON, 4000 tons, New England Building.  
LONG ISLAND CITY, N. Y., 290 tons, warehouse for Bayonne Steel Ceiling Co.  
PHILADELPHIA, 200 tons, deck for Tacony-Palmyra bridge; bids in.  
BOCARATONE, FLA., 500 tons, club house; bids being taken.  
CHICAGO, 117 tons, building for Chicago Portrait Co.; N. Max Dunning, architect.  
CHICAGO, tonnage being estimated, Northwest Side Y. M. C. A.; Perkins, Chatten & Hammerland, architects.  
CHICAGO, tonnage being estimated, North-West Tower apartment building; Perkins, Chatten & Hammerland, architects.  
CHICAGO, 200 tons, completion of Soldier Field Stadium; John Griffith & Son, general contractors.  
STICKNEY, ILL., tonnage not stated, sewer project.  
AURORA, ILL., tonnage being estimated, sewer.  
ST. LOUIS, 250 tons, Mark Twain Hotel.  
PHOENIX, ARIZ., 263 tons, highway work between Globe and Safford; bids April 5.  
SACRAMENTO, CAL., 212 tons, highway work near French Camp; bids opened.

## RAILROAD EQUIPMENT

### Inquiries for 1050 Freight Cars—300 Refrigerator and 260 Ballast Cars Purchased

**T**HE Southern Pacific has inquired for 500 flat cars and 50 gondolas and the North American Car Corporation will buy 500 tank cars. The latter company has purchased 300 refrigerator cars and the Canadian National has ordered 260 ballast cars. Included in the week's passenger equipment purchases are 69 miscellaneous items for the Canadian National. Details of the week's business follow:

North American Car Corporation has ordered 300 refrigerator cars from Pressed Steel Car Co. Company is also inquiring for 500 tank cars in addition to 300 poultry cars previously noted in these columns.

Norfolk & Western will rebuild 250 all-steel gondola cars at its Roanoke, Va., shops.

Canadian National has ordered 12 snow plows from Eastern Car Co. and 69 passenger train cars distributed as follows: Five cafe parlor cars, two buffet club cars and 30 colonist cars from Canadian Car & Foundry Co., and 12 baggage and 30 colonist cars from National Steel Car Corporation. This road has also ordered 60 ballast cars from Canadian Car & Foundry Co. and 200 ballast cars from Eastern Car Co.

Pond Creek Colliery Co. has ordered 60 mine cars from Hockensmith Wheel & Mine Car Co.

Ringling Brothers have ordered 65 all-steel circus cars of special construction from Warren Tank Car Co.

Southern Pacific will buy 500 flat cars and 50 gondola cars.

Chicago Rapid Transit Co. has revised its inquiry and is now asking for either 50 or 100 motor cars and 50 or 100 trailers.

## FABRICATED STRUCTURAL STEEL

### Bridge at Louisville Takes 18,000 Tons—Total Awards of 46,000 Tons

WITH a bridge across the Ohio River at Louisville requiring 18,000 tons and a section of the subway in New York taking 7800 tons, structural steel lettings amounted to 46,000 tons in the past week. About 20,800 tons is called for in new pending projects, the largest of which is a bridge at Newark, N. J., for the Pennsylvania Railroad. Awards follow:

WEST BOYLSTON, MASS., 130 tons, bridge, to Boston Bridge Works, Inc.

SPRINGFIELD, MASS., 550 tons, hotel, to Palmer Steel Co.

ALBANY, N. Y., 600 tons, office building, to Levering & Garigues Co.

BOSTON, 125 tons, Working Boys' Home, to New England Structural Co.

NEW YORK, 2970 tons in the following awards as reported by Structural Steel Board of Trade: High school at Roslyn, L. I., to Lehigh Structural Steel Co.; Mansion Theater at Fifty-eighth Street and Lexington Avenue and new roof for Medical Center building at 168th Street and Broadway, to Taylor-Fichter Steel Construction Co.; alteration to building at 81 Fifth Avenue, service building at Sixth Avenue and Seventh Street, Brooklyn, and Oddfellows Temple at 105 East 106th Street, to George A. Just Co.

NEW YORK, 160 tons, alteration to residence at 15 East Eighty-fourth Street, to Fassler Iron Works.

NEW YORK, 7800 tons, section of subway, route 106, to McClintic-Marshall Co.

ROSELAND, N. J., 280 tons, switching station for Public Service Production Co., to Archibald Brady Co.

TRENTON, N. J., 120 tons, store and loft building for N. A. K. Bugbee Co., to American Bridge Co.

PHILADELPHIA, 490 tons, building for Terminal Title & Trust Co., to Bethlehem Fabricators, Inc.

PENNSYLVANIA RAILROAD, 470 tons; 245 tons for bridge at Baltimore to Fort Pitt Bridge Works, 125 tons for bridge at Akron, Ohio, to Bethlehem Steel Co., and 100 tons for bridge at Stoney Brook, Pa., to American Bridge Co.

NEW CASTLE, DEL., 200 tons, mill building, to Belmont Iron Works.

BALTIMORE, 550 tons, North Avenue market, to McClintic-Marshall Co.

WASHINGTON, 950 tons, administration building for Department of Agriculture, to McClintic-Marshall Co.

BUTLER, PA., 169 tons, residence for B. D. Phillips, to Jones & Laughlin Steel Corporation.

ECONOMY, PA., 300 tons, crane runway roof for Central Tube Co., to Jones & Laughlin Steel Corporation.

PITTSBURGH, 1025 tons, six steel barges for Union Barge Line, to American Bridge Co.

PITTSBURGH, 2200 tons, 10 covered barges for Carnegie Steel Co., to American Bridge Co.

CORAOPOLIS, PA., 600 tons, County bridge repairs, to American Bridge Co.

LOUISVILLE, KY., 18,000 tons, Big Four railroad bridge across Ohio River, to McClintic-Marshall Co.

NASHVILLE, TENN., 110 tons, sheet metal manufacturing plant, to McClintic-Marshall Co.

SHARONVILLE, OHIO, 525 tons, four subway structures for Big Four railroad, to McClintic-Marshall Co.

ARGO, ILL., 205 tons, building for Corn Products Co., to Gage Structural Steel Co., Chicago.

SANTA FE RAILROAD, 300 tons, bridges, to Kansas City Structural Steel Co.

MISSOURI-KANSAS-TEXAS RAILROAD, 300 tons, bridges, to Kansas City Structural Steel Co.

SOUTH CHICAGO, 380 tons, building for Federal Furnace Co., to Worden-Allen Co.

ROCK ISLAND, ILL., 500 tons, repairs to Rock Island Railroad bridge across Mississippi River, to Fort Pitt Bridge Works.

ST. LOUIS, 365 tons, metropolitan police gymnasium, to St. Louis Structural Steel Co.

KELLOGG, ORE., 280 tons, bridge over Umpqua River, to Clyde Catching, Reedsport, Ore.

OAKLAND, CAL., 4300 tons, Capewell store, to Judson-Pacific Co.

SAN FRANCISCO, 400 tons, addition to Medical-Dental Building, to Judson-Pacific Co.

SAN FRANCISCO, 140 tons, steel joists, Junior beams, apartment building, Stockton near California Street, to Judson-Pacific Co.

PITTSBURGH, CAL., 125 tons, for Columbia Steel Co., to Pacific Coast Engineering Co.

LOS ANGELES, 400 tons, apartment building at 8225 Sunset Boulevard, to Llewellyn Iron Works.

## Structural Projects Pending

Inquiries for fabricated steel work include the following:

MAINE CENTRAL RAILROAD, 275 tons, five bridges.

BANGOR & AROOSTOOK RAILROAD, 315 tons, bridge at Monticello, Me.

STATE OF VERMONT, 200 tons, three highway bridges.

BROOKLYN, 1000 tons, Tilden Theater.

NEW YORK CENTRAL RAILROAD, 1275 tons, baggage subway and bridge at South Bend, Ind.

NEWARK, N. J., 5000 tons, Newark Bay bridge for Pennsylvania Railroad; bids April 26.

STANDARD OIL CO. OF NEW JERSEY, 250 tons, 80,000-gal. tank at McCamey, Tex.

CENTRAL RAILROAD OF NEW JERSEY, 165 tons, bridge at Scranton, Pa.

CAMDEN, N. J., 250 tons, Catholic church and school.

PENNSYLVANIA RAILROAD, 115 tons, bridge at Cartersburg, Ind.

GLENDALE, PA., 300 tons, theater.

BALTIMORE & OHIO RAILROAD, 1800 tons, bridges.

SEABOARD AIR LINE RAILROAD, 120 tons, bridge at Calhoun Falls, S. C.

SOUTHERN RAILWAY, 700 tons; 500 tons for viaduct at Cloude, Tenn., and 200 tons for miscellaneous bridges.

ATLANTA, GA., 1000 tons, viaducts.

HUNTINGTON, W. VA., 200 tons, three barges for United States Engineers; Howard Shipyards & Dock Co., Jeffersonville, Ind., low bidder.

MEMPHIS, 3500 tons, 31 barges for Mississippi River Commission; Riter-Conley Co., low bidder.

DAYTON, OHIO, 500 tons, Dayton-Biltmore Hotel.

CHICAGO, 650 tons, approaches to Crawford Avenue bridge.

CHICAGO, 700 tons, warehouse for Illinois Central Railroad, temporarily postponed.

CHICAGO, 1200 tons, 15-story office building.

CHICAGO, 2000 tons, warehouse for Buick Motor Co.

CHICAGO, tonnage being estimated, four-story addition to Sheridan Trust & Savings Bank.

AURORA, ILL., 250 tons, public school; Rochester Bridge Co., Rochester, Ind., low bidder.

BESSEMER, MICH., 200 tons, interstate bridge between Iron County, Wis., and Gogebic County, Mich.; bids close April 19.

MARINETTE, WIS., 250 tons, two-leaf draw span between Menominee, Mich., and Marinette, Wis.; bids close April 10.

WAUSAU, WIS., 150 tons, Marshfield-Athens highway span; bids close April 5.

SACRAMENTO, CAL., 947 tons, bridge over San Joaquin River near Herndon; bids April 18.

SACRAMENTO, 606 tons, bridge over Sacramento River at Freeport; C. J. Nystedt, Stockton, low bidder on general contract.

SAN FRANCISCO, 700 tons, car float for Santa Fe; bids being received.

REEDSPORT, ORE., 530 tons, bridge over McKenzie River; general contract to Linstrom & Felgeson, Portland, Ore.

## Employment in Ohio Better in February

February employment in the iron and steel industries of Ohio was 9 per cent greater than in January, and was the same as in February, 1927, according to the bureau of business research of Ohio State University. Twenty-five of the 42 reporting companies shared in the increase, 11 showed a decline and six indicated no change. The blast furnace group revealed a sharp decrease in workers, the number of employees being 26 per cent less than in January, and 47 per cent less than in February, 1927.

Steel works and rolling mills, on the other hand, had 8 per cent more men on their payrolls in February than in January and 2 per cent more than in the corresponding month last year. In this group 10 of the 14 reporting concerns participated in the improvement. February employment in 148 machinery companies averaged 2 per cent ahead of January, but 8 per cent less than in February, 1927. The betterment was shared by all cities except Dayton, while Cincinnati was the only city showing an increase from February, 1927. Within the machinery group the foundry and machine shop section, with 101 reporting firms, revealed an improvement of 5 per cent from January, while 12 machine tool companies showed an upward movement of 8 per cent.

## PERSONAL

Charles Stamm, whose appointment as sales manager of the Empire Steel Corporation, Mansfield, Ohio,



CHARLES STAMM

was announced in *THE IRON AGE*, March 1, started in the steel industry with the Carnahan Tin Plate & Sheet Co., Canton, Ohio, in 1903, as a tracer. Later he became weigh master. He was a shipping clerk at the Zanesville, Ohio, works of the American Rolling Mill Co. from 1905 to 1908, going from there to the Massillon Rolling Mill Co., where he was in charge of the finishing and some other departments from 1908 to 1914. From 1914 until his recent advancement he was employed by the Mansfield Sheet & Tin Plate Co., first as a finishing department superintendent, then as production manager

and later as special representative.

Justin G. Smeby has been appointed welding engineer South Philadelphia Works, Westinghouse Electric & Mfg. Co. He was graduated in mechanical engineering from the University of North Dakota in 1922 and since has been attached to the South Philadelphia plant.

Dr. Edward E. Marbaker has been appointed to a fellowship recently established by the Whiting Corporation, Harvey, Ill., at the Mellon Institute of Industrial Research, University of Pittsburgh. The fellowship was established for the purpose of carrying on research on cast iron and the results will be published for the benefit of the foundry industry. Dr. Marbaker was graduated from the Towne Scientific School of the University of Pennsylvania in 1910 and four years later received his doctor's degree from the same university. He was first employed by the Westinghouse Lamp Co., Philadelphia, where he carried on original investigation of the platinum metals. He later became chief chemist for the company and had charge of its metallurgical laboratory. In 1917 he became associated with Alexander Brothers, Philadelphia, manufacturers of leather belting, as chief chemist and later as chief engineer. In 1920 and 1921 he was chief chemist for the Cleveland wire division of the National Lamp Works of the General Electric Co., specializing in problems incident to the manufacture of non-sag tungsten wire and molybdenum metals. Since 1921 he has been a fellow of the Mellon Institute, conducting various chemical and metallurgical work.

O. G. Simmons, of the National Tool Co., Cleveland, gave an address on the development of gears and the machinery required to manufacture them at the March meeting of the Tri-City chapter of the American Society for Steel Treating, held at the Chamber of Commerce, Davenport, Iowa.

W. J. Bruce, of Worcester, Mass., will have charge of the plant of the Bromwell Wire Goods Co. at Greensburg, Ind., which has recently been acquired and will be operated by the Cyclone Fence Co., Waukegan, Ill.

F. Baackes, Jr., has been appointed sales agent at Cincinnati for the American Steel & Wire Co., succeeding S. A. Felix, who has retired after 25 years of active service with that company. Mr. Felix started to work for the American Steel & Wire Co. in its St. Louis office. In 1915 he was transferred to the St. Paul,

Minn., office and in 1918 took charge of the Cincinnati office.

H. B. Maguire, formerly assistant manager of the Detroit office of the American Steel & Wire Co., has been appointed assistant to D. A. Merriman, general manager of sales, 208 South LaSalle Street, Chicago.

Dwight Ruth has resigned as assistant treasurer of the Saranac Machine Co., Benton Harbor, Mich., to become associated with the Moulds Brass Foundry Co., of that city.

L. E. Gilmore, metallurgical engineer Crane Co., Chicago, will address the Chicago Foundrymen's Club at its monthly meeting at the City Club on April 5. His subject will be "Cupola and Air Furnace Practice."

Dr. Zay Jeffries, consulting metallurgist for the Aluminum Co. of America and General Electric Co., will address the New York Chapter American Society for Steel Treating, in the Merchants' Association auditorium, Woolworth Building, Monday, April 16, on "The Hardening of Steel."

W. H. Norrington, until recently general sales manager of the Robins Conveying Belt Co., New York, has been appointed representative in New York and vicinity of the C. O. Bartlett & Snow Co., Cleveland. His headquarters will be at 30 Church Street. Mr. Norrington was graduated from the engineering department of the University of Michigan, and then served two years in the manufacturing department of the Republic Rubber Co., Youngstown. He became associated with the Robins Conveying Belt Co. in 1914 and was made general sales manager in 1921.

W. H. Foster, whose election as chairman of the board of the General Fireproofing Co., Youngstown, was announced in *THE IRON AGE* last week, has been president of the company since 1912. He was at one time general sales manager of the Youngstown Sheet & Tube



W. H. FOSTER



G. C. BRAINARD

Co., later joining the Fireproofing company as secretary. George C. Brainard, who has succeeded Mr. Foster as president of the company, became associated with it in 1923 and was most recently vice-president in charge of operations. He attended Northwestern University, Evanston, Ill., and Cornell University, Ithaca, N. Y., and in 1913 became identified with the Hydraulic Steel Co., Cleveland. He served as factory manager of that company until 1920, with the exception of an interval during the war when he was on the staff of the Chief of Ordnance. From 1920 until 1923 he was vice-president of the Hydraulic company.

Caleb Davies, Jr., has resigned as assistant general superintendent Republic Iron & Steel Co., Youngstown, Ohio, to become vice-president American Tar Products Co., Pittsburgh, a subsidiary of the Koppers Co.



David R. Sieber, for the past five years Pittsburgh district manager of sales for the General Refractories Co., Philadelphia, has been elected a vice-president of that company.

J. C. Gillette, works manager National Carbon Co., Cleveland, has been elected chairman of a plant engineers' division recently organized by the Cleveland Engineering Society. McRae Parker, chief engineer Cleveland Worsted Mills Co., has been named vice-chairman, and Paul H. Voth, equipment engineer Willard Storage Battery Co., recorder. These officers will serve until the annual meeting in May.

A. R. Hauschel, of Paris, France, has arrived in Racine, Wis., to assume his new duties as general foreign sales manager of the J. I. Case Threshing Machine Co. with headquarters at the main offices in Racine. Mr. Hauschel, a native of Alsace Lorraine, became associated with the Case company in 1900 and for several years he has been general European sales manager, with headquarters in Paris.

Bertram D. Quarrie has been elected president of the Oliver Iron & Steel Corporation, Pittsburgh, succeeding Henry Oliver, who assumes the newly created office of chairman of the board of directors. Except for a brief period spent in the chemical industry, the new head of the Oliver corporation has been actively identified with the iron and steel industry continuously since his graduation in 1903 from Case School of Applied Science, Cleveland. For 15 years he was with the American Steel & Wire Co., serving successively as assistant and then superintendent Central furnaces, Cleveland, and superintendent Newburgh works, leaving the latter position in 1922 to become general manager Otis Steel Co., Cleveland. For the past four years he has been vice-president Paper & Textile Machinery Co., Sandusky, Ohio. Before joining the American Steel & Wire Co., Mr. Quarrie was with the Cleveland Furnace Co., the Inland Steel Co., and the Grasselli Chemical Co.



D. D. Francis, secretary-treasurer Marvel Carburetor Co., Flint, Mich., has been made president of the Wheeler-Schebler Carburetor Co., Indianapolis, following the purchase of the Indianapolis company by the Marvel organization.

A. P. Dowell has been appointed general superintendent of Plant No. 1, body division, Murray Corporation of America, Detroit. He has been associated with the manufacture of automobile bodies at Detroit for 19 years, having begun with the Briggs Mfg. Co., of which company he was later vice-president and assistant general manager. For the last seven years he has been associated with the Fisher Body Corporation.

John G. Platt has been elected president of the Hunt-Spiller Mfg. Corporation, Boston, succeeding the late Walter B. Leach.

J. L. Spitzer is manager of a new brokerage department which has been established by L. Schiavone & Bonomo Brothers, Inc., Jersey City, to handle scrap iron and steel bought and sold in the Eastern district. The department will be operated separately from the company's activities as a dealer.

Clement J. Hardy, consulting engineer, Chicago, spoke on "New Foundries for Old" at the monthly meet-

ing of the Wisconsin Gray Iron Research Group at the Republican House, Milwaukee, on April 4.

Robert K. Greaves has been appointed Detroit district manager in charge of sales of tool and special steel and metal cutting saws for Henry Disston & Sons, Inc., Tacony, Philadelphia. His headquarters will be at 620 East Hancock Street.

Dr. Arthur D. Little, president of Arthur D. Little, Inc., chemist and engineer, Cambridge, Mass., delivered the Aldred lecture at the Massachusetts Institute of Technology on March 23. His subject was "Chemical Industry."

William O. Lange has been elected secretary of the Phoenix Iron Co., Philadelphia, succeeding the late George Gerry White, who had filled the office for 58 years and who had been connected with the company for 71 years. Mr. Lange has been connected with the company for over 23 years and for the past two years has been general manager of sales.

H. L. McCauley, since 1924 assistant district sales manager at Milwaukee for the Inland Steel Co., Chicago, has been appointed district sales manager for the company in that city, succeeding C. M. Easterly who has resigned. Mr. McCauley became associated with the Inland company in 1920, serving in the order department before going to the Milwaukee office in 1924. Previously he had been associated with the American Sheet & Tin Plate Co. at Gary, Ind., Pittsburgh and Saltsburg, Pa. M. E. Gregg, who succeeds Mr. McCauley as assistant district manager at Milwaukee, has



served in a similar capacity in the company's St. Paul, Minn., office since 1925. His previous business associations were with the Bethlehem Steel Co., the Lackawanna Steel Co., the Republic Iron & Steel Co. and the Basset-Presley Co.

H. J. Hair, recently engineer in the railroad sales department of the Whiting Corporation, Harvey, Ill., has been appointed manager of railroad sales for the Watson-Stillman Co., 75 West Street, New York. He was graduated from Purdue University and served for a time as mechanical engineer for the Baltimore & Ohio Southwestern Railroad. Later he was Pittsburgh district manager for Manning, Maxwell & Moore, Inc.

J. A. Claussen, Rogers Brown & Crocker Brothers, New York, sailed from New York April 2 on a vacation trip to Havana, Cuba.

William J. Chapin, recently associated with the Peoples Gas, Light & Coke Co., Chicago, and the Peerless Heat Co., Pittsburgh, has been appointed engineer for heat resisting alloys manufactured by the Chicago Steel Foundry Co., Chicago.

## OBITUARY

COL. WILLIAM HENRY MORGAN, president Morgan Engineering Co., Alliance, Ohio, and a pioneer in the electric traveling crane industry, died at Union Memorial Hospital, Baltimore, March 29, following an operation. He was 63 years of age. Colonel Morgan was born in Pittston, Pa., June 1, 1865.



COL. W. H. MORGAN

His parents moved to Alliance in 1871 where in that year his father, Thomas R. Morgan, Sr., founded the Morgan Engineering Co. to manufacture steel mill and handling equipment. After attending the Alliance High School and Mount Union College, Alliance, Colonel Morgan went into the Morgan plant and, after the death of his father in 1897, became president of the company. In 1888 he designed one of the first electric traveling cranes

built by the Morgan company and also developed considerable other equipment. After he became president, he continued to spend much of his time in the engineering department designing mill equipment. He was active in the company until about two years ago, when poor health compelled him to give up most of his business duties. He was a member of the American Iron and Steel Institute and of the (British) Iron and Steel Institute. He acquired the title of Colonel a number of years ago when he served on the staff of George K. Nash, governor of Ohio. He is survived by his widow and one son, William H. Morgan, Jr., the latter connected with the Morgan plant.

CHARLES S. SMITH, for many years vice-president A. O. Smith Corporation, Milwaukee, maker of pressed steel automobile frames and oil well equipment, died, March 28 in Bermuda, aged 67 years. As a youth he became associated with his father and brother in the C. J. Smith & Sons Co., manufacturer of bicycle parts, the business later becoming the A. O. Smith Corporation.

ALBERT A. DOWD, specialist in tool engineering, died in Detroit March 15, of pneumonia. At the time of his death he was connected with the Chrysler Corporation, and before that had been engaged in consulting work. He was born in North Granville, N. Y., Oct. 2, 1872. Among a number of other companies he had been employed by the Pratt & Whitney Co., Hartford, Conn., and the Bullard Machine Tool Co., Bridgeport, Conn. He was a contributor to THE IRON AGE and other publications and was author and co-author of a number of books on tool engineering and related subjects.

DAVID H. DARRIN, president Automatic Switch Co., New York, died on March 29 at his home in New Rochelle, N. Y., aged 60 years. He was a life member of the American Society of Mechanical Engineers and a member of the Engineers' Club, New York.

DR. W. F. M. GOSS, in 1914 president of the American Society of Mechanical Engineers and long dean of the schools of engineering of both Purdue University and of the University of Illinois, died at the Waldorf Astoria Hotel, New York, on March 23. He was born at Barnstable, Mass., in 1859 and attended the Massachu-

setts Institute of Technology. He established the course in mechanic arts at Purdue University. In 1907 he left Purdue to become dean of the College of Engineering and director of the School of Railway Engineering and Administration at the University of Illinois. He resigned from this position in 1917 to become president of the Railway Car Manufacturers Association, having held that position until his retirement in 1925. He was honored by the degree of Doctor of Engineering by the University of Illinois in 1904 and had received recognition from many other sources for his work in transportation and engineering.

## RAIL PRODUCTION IN 1927

### Falling Off from 1926 in All Sections, but Above 10-Year Average

STEEL rails produced in the United States in 1927 are reported by the American Iron and Steel Institute at 2,806,390 gross tons, a decline of 12.78 per cent from the 3,217,649 tons of 1926, but a gain of 8 per cent over the 10-year average (1917-1926) of 2,598,436 tons. The year's total was close to the 2,812,079-ton average of the three years 1924-1926. All sections participated in the decline from 1926, rails of 100 lb. and over recording the smallest loss—1.66 per cent. Those of under 50 lb. dropped 18 per cent; those of 50 to 84 lb., 33.4 per cent; those of 85 to 99 lb., 33.4 per cent.

More than two-thirds of all the rail tonnage in 1927 was of 100-lb. section or heavier. The ratio, 68.84 per cent, is the highest ever reached. Both 1926, with 61.12 per cent, and 1925, with 58.76 per cent, had previously held the high record in this respect. So pronounced has the preponderance of heavy rails become that the institute has this year started a new classification, separating the rails of 100 lb. and over into two weight groups. Rails weighing 120 lb. or more are now separately listed, at 617,524 tons, or 22.01 per cent of the total. This follows the action of 13 years ago, when the 100-lb. rails were separated for the first time from the previous heavy group, weighing 85 lb. and over. At that time the new heavy section contributed 27.18 per cent to the total year's tonnage.

Alloy-treated steel rails dropped in 1927 to 1265 tons, much the smallest amount in over 20 years. All but 77 tons was manganese—10 per cent and over. The maximum tonnage under this heading came in 1910, with 257,324 tons, nearly all of which was titanium-treated. Only one year since 1917, however, has seen over 6500 tons of alloy-treated rails produced. No electric steel rails have been made since 1923, and less than 650 tons, total, since 1913.

Rails rolled from ingots in 1927, either with or without reheating of blooms, totaled 2,719,431 tons. Of this amount all were open-hearth with the exception of a small fraction (0.058) of 1 per cent. This marks the highest open-hearth percentage ever reached, for Bessemer rails have never, heretofore, been below 0.35 per cent of the total of steel rails. In 1921 and all earlier years they were over 2.7 per cent.

Except for 1925, the 1927 tonnage of rails rerolled from old rails was the smallest since these figures were first reported separately, for the 1911 production. Compared with the 10 years, 1917-1926, when an average of 108,586 tons was so produced, the 86,959 tons of 1927 represents a drop of 19.9 per cent.

### PRODUCTION OF STEEL RAILS IN THE UNITED STATES

(In Gross Tons)			
Weight per yard:	1927	1926	1925
120 lb. and over.....	617,524	1,966,440	1,636,631
100 lb. to 119 lb.....	1,314,424	797,662	765,371
85 lb. to 99 lb.....	539,445	256,287	219,648
50 lb. to 84 lb.....	173,257	197,260	163,607
Under 50 lb.....	161,740		
Total .....	2,806,390	3,217,649	2,785,257
Percentage weighing 100 lb. and over .....	68.84	61.12	58.76
Included above:			
Open-hearth .....	2,717,865	3,107,992	2,691,823
Bessemer .....	1,566 (a)	12,533	9,687
Rerolled from old rails...	86,959 (b)	97,124	83,747
Alloy-treated .....	1,265	4,216	4,009

(a) All under 50 lb. (b) All under 100 lb.: 80 per cent under 50 lb.

# Machinery Exports at Higher Rates

Total in Two Months 13 Per Cent Ahead of 1927—Imports  
Larger in February

WASHINGTON, March 31.—Exports of machinery of all kinds in February were valued at \$35,955,176, against \$36,183,571 in January, a decline of \$228,395. Based on working days, however, the average shipments in February exceeded those of January, the daily rates having been \$1,438,207 and \$1,391,676 respectively. For the two months ended with February the total was \$71,218,747, compared with \$63,031,507 for the corresponding period of last year, an increase of \$8,187,240, or almost 13 per cent.

Power-driven metal-working tools to the number of 623, valued at \$1,242,234, were exported in February, comparing with 686, valued at \$1,315,771 in January, as listed in THE IRON AGE table. Total exports of industrial machinery, as classified by the division of statistics, Department of Commerce, amounted to \$16,173,666 in February, against \$16,202,582 in January and \$13,762,055 in February of last year. For the two months ended with February, 1928, they were valued at \$32,456,248, compared with \$31,316,610 for the corresponding period of last year.

Exports of agricultural machinery in February were valued at \$8,035,812, against \$7,855,000 in January. For the two months ended with February they were valued at \$15,890,503, against \$10,118,660 for the corresponding period of last year.

Machinery imports, as listed in THE IRON AGE table, were valued at \$1,714,648 in February, against \$1,157,964 in January and \$1,483,713 in February, 1927. For

the two months ended with February they were valued at \$2,918,848, against \$3,123,990 for the corresponding period of last year. Imports of industrial, office and printing machinery in February were valued at \$1,369,249, against \$1,074,638 in January and \$1,324,521 in February of last year. For the two months ended with February the values were \$2,748,363 in 1927 and \$2,443,887 in 1928.

## River Shipments of Iron and Steel Products Rising

Increased use of the inland waterways for the transportation of iron and steel products continues to be indicated in the February report of the Pittsburgh office, United States Engineers, which covers the waterborne movement on the Ohio, Monongahela and Allegheny rivers in the Pittsburgh district. The shipments on the Monongahela River fell off somewhat last month from those of the previous month, but even so were almost two and one-half times those of February last year, while steel products carried on the Ohio were almost 18,000 tons greater than in January and very nearly triple those of February last year. The figures in net tons compare as follows:

	Allegheny	Monongahela	Ohio
February, 1928.....	385	73,360	87,635
January, 1928.....	330	78,069	69,750
February, 1927.....	—	29,529	29,211

## Machinery Exports from the United States

(By Value, in Thousands of Dollars)

	February		Two Months Ended February	
	1928	1927	1928	1927
Locomotives .....	\$80	\$63	\$206	\$1,196
Other steam engines ..	28	53	98	338
Boilers .....	73	146	148	417
Accessories and parts..	36	41	82	74
Automobile engines ..	952	1,098	1,697	1,776
Other internal combustion engines .....	467	355	1,099	902
Accessories and parts..	210	353	466	697
Electric locomotives ..	114	50	488	67
Excavating machinery ..	655	306	1,192	631
Concrete mixers .....	56	84	127	194
Road making machinery	66	78	149	190
Elevators and elevator machinery .....	266	419	632	761
Mining and quarrying machinery .....	1,025	1,070	1,961	2,206
Oil well machinery....	799	1,435	1,864	3,413
Pumps .....	506	444	1,134	1,039
Sheet and plate metal working machines ...	96	50	222	156
Machine tools*.....	1,315	773	2,714	1,554
Forging machinery .....	57	50	146	156
Other metal - working machinery and parts..	433	285	881	637
Textile machinery .....	922	721	2,138	1,746
Sewing machines .....	718	725	1,386	1,498
Shoe machinery .....	133	101	302	174
Flour-mill and gristmill machinery .....	54	20	90	37
Sugar-mill machinery..	1,112	285	1,295	450
Paper and pulp mill machinery .....	393	573	688	1,159
Sawmill machinery .....	70	59	127	138
Other woodworking machinery .....	106	80	317	194
Refrigerating and ice-making machinery ..	581	306	1,164	706
Air compressors .....	506	399	861	732
Typewriters .....	1,777	1,589	3,733	3,240
Power laundry machinery .....	73	178	132	258
Typesetting machines...	308	204	770	528
Printing presses .....	462	613	859	1,084
Agricultural machinery and implements .....	8,036	5,487	15,891	10,119
All other machinery and parts .....	13,471	11,089	26,149	24,563
Total.....	\$35,955	\$29,584	\$71,219	\$63,032

\*Principal details in another table.

## Exports of Power-Driven Metal-Working Machinery

	February, 1928		January, 1928	
	No.	Value	No.	Value
Engine lathes .....	68	\$141,578	66	\$157,399
Turret lathes .....	30	89,649	26	82,136
Other lathes .....	53	54,515	57	155,744
Vertical boring mills and chucking machines .....	7	19,235	7	30,978
Thread - cutting and automatic screw machines .....	66	138,959	74	88,723
Knee and column type milling machines ...	24	65,420	30	69,761
Other milling machines	51	106,778	81	147,290
Gear-cutting machines.	24	87,417	31	91,452
Vertical drilling machines .....	19	15,103	42	44,430
Radial drilling machines	13	20,388	18	31,519
Other drilling machines	56	37,398	42	76,167
Planers and shapers..	36	78,846	40	62,459
External cylindrical grinding machines..	98	257,637	77	166,151
Internal grinding machines .....	37	88,601	46	76,359
Metal - working tool-sharpening machines.	41	40,710	49	35,203
Total .....	623	\$1,242,234	686	\$1,315,771

## Imports of Machinery into the United States

(By Value)

	February		Two Months Ended February	
	1928	1927	1928	1927
Metal - working machine tools..	\$31,539	\$31,742	\$88,167	\$65,313
Agricultural machinery and implements .....	544,200	535,083	946,715	871,127
Electrical machinery and apparatus .....	187,687	142,879	284,742	394,391
Other power-generating machinery .....	14,218	2,568	21,415	19,389
Other machinery.	665,757	624,383	1,136,166	1,475,110
Automobiles and other vehicles, except agricultural .....	271,247	147,057	441,643	298,660
Total.....	\$1,714,648	\$1,483,713	\$2,918,848	\$3,123,990



# Production of Pig Iron and Ferroalloys in the United States in 1927

**OFFICIAL** figures of the American Iron and Steel Institute show a total production of pig iron and ferroalloys in 1927 of 36,565,645 gross tons. Of this amount 35,858,232 tons was pig iron and 707,413 tons was ferroalloys. The latter is the largest figure in some years. Pig iron shows a reduction from the 38,698,417 tons of 1926 and is slightly below the 36,116,311 tons in 1925. Details are shown in the tables below, all figures being in gross tons.

PRODUCTION OF PIG IRON AND FERROALLOYS BY STATES, 1923-1927

States	1923	1924	1925	1926	1927
Massachusetts .	1,809				
New York, New Jersey . . . . .	2,951,810	2,013,673	2,187,733	2,729,261	2,775,351
Pennsylvania . .	14,804,620	11,068,979	12,523,485	13,587,881	11,829,599
Maryland . . . .	529,606	558,420	705,377	805,373	855,566
Virginia . . . . .	276,874	97,739	125,325	103,000	99,197
Alabama . . . . .	2,797,190	2,773,825	2,836,023	2,953,294	2,782,993
West Virginia, Kentucky . . . . .	702,454	568,031	651,983	516,094	699,514
Tennessee . . . .	250,982	137,991	110,232	110,146	133,785
Ohio . . . . .	9,347,960	7,415,039	8,862,646	9,359,275	8,502,459
Illinois . . . . .	3,839,063	2,600,864	3,604,255	3,659,974	3,588,595
Ind., Michigan . .	3,813,125	3,350,385	4,119,811	4,377,068	4,201,802
Wis., Minnesota .	724,717	357,271	468,479	537,499	455,727
Missouri, Iowa, Colo., Utah, Washington . . . .	321,436	463,573	505,217	633,864	641,057
Total . . . . .	40,361,146	31,405,790	36,700,566	39,372,729	36,565,645
Pig iron . . . . .	39,721,415	30,874,765	36,116,311	38,698,417	35,858,232
Ferroalloys . . . .	639,731	531,025	584,255	674,312	707,413

PRODUCTION OF PIG IRON BY STATES, 1926-1927, SHOWING INCREASE OR DECREASE

States	1927	Per Cent	1926	Per Cent	Increase	Per Cent
Pennsylvania . .	11,466,457	31.98	13,231,890	34.19	*1,765,433	*13.34
Ohio . . . . .	8,407,243	23.45	9,261,405	23.93	*854,162	*9.22
Indiana, Mich. .	4,199,517	11.71	4,377,068	11.31	*177,551	*4.06
Illinois . . . . .	3,588,463	10.01	3,656,688	9.45	*68,225	*1.87
Alabama . . . . .	2,758,387	7.69	2,933,796	7.58	*175,409	*5.98
Mass., New York	2,615,556	7.29	2,599,517	6.72	16,039	0.62
Maryland, Va. .	941,501	2.63	881,561	2.28	59,940	6.80
W. Va., Ky. . . .	697,184	1.94	513,994	1.33	183,190	35.64
Colorado, Utah. .	613,627	1.71	608,834	1.57	4,793	0.79
Wis., Minn. . . .	455,727	1.27	537,499	1.39	*81,772	*15.21
Tennessee . . . .	114,570	0.32	96,165	0.25	18,405	19.14
Total . . . . .	35,858,232	100.00	38,698,417	100.00	*2,840,185	*7.34

\*Decrease.

PRODUCTION OF COLD AND HOT AND WARM BLAST CHARCOAL PIG IRON, 1923-1927

Kinds of Pig Iron	1923	1924	1925	1926	1927
Cold blast . . . . .			1,014	400	
Hot and warm blast . . . . .	251,177	212,710	195,150	163,480	164,569
Total . . . . .	251,177	212,710	196,164	163,880	164,569

PIG IRON AND FERROALLOYS MADE FOR SALE OR FOR USE OF MAKERS IN 1927

Pig Iron and Ferroalloys	For Sale	For Maker's Use	Total
Pig iron:			
Basic . . . . .	1,821,977	17,535,087	19,357,064
Bessemer and low-phosphorus . . . . .	602,944	8,502,971	9,105,915
Foundry . . . . .	4,913,245	591,174	5,504,419
Malleable . . . . .	1,563,334	136,249	1,699,583
Forge or mill . . . . .	68,515	76,017	144,532
White and mottled, direct castings, etc. . . . .	7,874	38,845	46,719
Total pig iron . . . . .	8,977,889	26,880,343	35,858,232
Ferroalloys:			
Ferromanganese . . . . .	103,683	189,943	293,626
Spiegelisen . . . . .	99,580	1,140	100,720
Ferrosilicon . . . . .	278,277		278,277
All other ferroalloys . . . . .	34,658	132	34,790
Total ferroalloys . . . . .	516,198	191,215	707,413
Total pig iron and ferroalloys . . . . .	9,494,087	27,071,558	36,565,645

HALF-YEARLY PRODUCTION OF PIG IRON AND FERROALLOYS ACCORDING TO FUEL USED

	Blast Furnaces*				Production of Pig Iron and Ferroalloys		
	In Blast June 30, 1927	Dec. 31, 1927			First Half of 1927	Second Half of 1927	Total
		In	Out	Total			
Coke pig iron . . . .	186	162	168	330	19,117,018	16,576,645	35,693,663
Charcoal pig iron . .	7	7	6	13	85,052	79,517	164,569
Total pig iron . . .	193	169	174	343	19,202,070	16,656,162	35,858,232
Total ferroalloys . . . . .	12	9	12	21	†365,484	†341,929	†707,413
Grand total . . . . .	205	178	186	364	19,567,554	16,998,091	36,565,645

\*Computed and rebuilding.

†Includes ferromanganese, spiegelisen, ferrosilicon, and other ferroalloys made in blast furnaces or in electric furnaces.

PRODUCTION OF PIG IRON BY GRADES AND FERROALLOYS BY KINDS, 1926-1927, SHOWING INCREASE OR DECREASE

Grades of Pig Iron and Kinds of Ferroalloys	1927	Per Cent	1926	Per Cent	Increase	Per Cent
Pig iron:						
Basic . . . . .	19,357,064	53.98	21,168,407	54.70	*1,811,343	*8.56
Bessemer and low-phos. . . . .	9,105,915	25.40	10,042,324	25.95	*936,409	*9.32
Foundry . . . . .	5,504,419	15.35	5,506,968	14.23	*2,549	*0.05
Malleable . . . . .	1,699,583	4.74	1,681,897	4.35	17,686	1.05
Forge . . . . .	144,532	0.40	216,277	0.56	*71,745	*33.17
All other pig iron . . . . .	46,719	0.13	82,544	0.21	*35,825	*43.40
Total pig iron . . . .	35,858,232	100.00	38,698,417	100.00	*2,840,185	*7.34
Ferroalloys:						
Ferromanganese . . .	293,626	41.50	318,891	47.29	*25,265	*7.92
Spiegelisen . . . . .	100,720	14.23	76,215	11.30	24,505	32.15
Ferrosilicon . . . . .	278,277	39.33	245,605	36.43	32,672	13.30
All other ferroalloys .	34,790	4.94	33,601	4.98	1,189	3.54
Total ferroalloys . . .	707,413	100.00	674,312	100.00	33,101	4.91
Grand total . . . . .	36,565,645		39,372,729		*2,807,084	*7.13

\*Decrease.

PIG IRON MADE FOR SALE, BY GRADES, IN 1927

Grades	Basic	Low-Phosphorus	Foundry	Malleable	Forge	All Other Pig Iron	Total
Mass., N. Y., Maryland . . . . .	143,709	151,664	966,774	244,583	3,072		1,509,802
Pa. . . . .	568,070	360,245	770,252	74,742	33,420	41	1,806,770
Va., W. Va., Ala., Ky. . . . .	141,178	21,590	1,412,025		20,099	1,684	1,596,576
Tenn. . . . .	547,517	19,692	814,094	560,964	11,924		1,954,191
Ohio . . . . .	421,503	49,753	467,678	426,527		4,446	1,369,907
Mich., Wis., Minn., Utah . . . . .			482,422	256,518		1,703	740,643
Total . . . . .	1,821,977	602,944	4,913,245	1,563,334	68,515	7,874	8,977,889

METHODS BY WHICH PIG IRON AND FERROALLOYS WERE CAST OR DELIVERED IN 1927

States	Molten Condition	Sand Cast	Machine Cast	Chill Cast	Direct Castings	Total
Mass., N. Y., N. J., Md. . . . .	1,661,333	123,110	1,835,458	10,737	279	3,630,917
Pa. . . . .	8,330,397	104,317	3,117,045	274,075	3,765	11,829,599
Va., W. Va., Ala., Ky. . . . .	1,740,899	1,022,941	711,512	232,811	7,326	3,715,489
Tenn. . . . .	5,284,311	95,216	3,112,211		10,721	8,502,459
Ohio . . . . .						
Ind., Ill., Mich., Wis., Minn., Ia., Colo., Utah . . . . .	6,012,852	138,450	2,729,224	132	6,523	8,887,181
Total . . . . .	23,029,792	1,454,034	11,505,450	517,755	28,614	36,565,645

# Machinery Markets and News of the Works

## BUYING AT A GOOD RATE

### Machine Tool Orders Show No Falling Off—First Quarter Sales Large

#### Toledo Plant for Making Shock Absorbers for Ford Automobiles One of the Heaviest Buyers

**M**ACHINE tool buying continued through March at a good rate, and the total for the first quarter of the year runs fully 25 per cent ahead of the corresponding period in 1927, and some companies report a gain of fully 50 per cent. The volume of business pending gives promise that April buying will show little, if any, falling off.

One of the heaviest buyers is the Dana Mfg. Co., Toledo, Ohio, affiliated with the Spicer Mfg. Corporation, South Plainfield, N. J., which is equipping a plant for the manufacture of shock absorbers for Ford automobiles. A production of 6000 a day by July 1 is the schedule planned for. A considerable amount of equipment has been bought and more is under negotiation.

## New York

NEW YORK, April 3.

**M**ACHINE tool sellers in New York have closed one of the best three-month periods in years. Almost without exception, sales for the quarter have exceeded those for any similar period since 1923 and probably since 1920. At the end of March there had been no marked falling off in the volume as compared with February. January was in most instances the best month of the three. Prospects for a continued good business this month appear promising.

Among the week's sales were the following: A 16 x 60-in. lathe to Portsmouth Navy Yard; 16 x 36-in. lathe to an electric company in Ohio; five hand-production milling machines to a Cleveland company; 6-in. vertical shaper, two 7 x 32-in. bench lathes and a No. 3 universal milling machine to a motor car company; Pratt & Whitney No. 2 jig borer to an electrical manufacturer in New England; 6-in. vertical shaper to a Youngstown company; 13 x 30-in. lathe to a Syracuse, N. Y., manufacturer; 800-lb. Bement single-frame steam hammer to Department of Water and Power, Los Angeles; 7-in. United States grinder and 11-in. x 4-ft. Blount speed lathe to Pratt & Whitney Aircraft Corporation, Hartford, Conn.; Cincinnati high-speed tapping machine to a company in Indiana; 36-in. x 44-ft. Time-Saver lathe to a Connecticut company.

Kent Automatic Parking Garage, Inc., 350 Madison Avenue, New York, has begun work on a twenty-four-story service, repair and garage building, 50 x 200 ft., at 209-11 East Forty-third Street, to cost \$1,300,000 with equipment. Jardine, Hill & Murdock, 347 Madison Avenue, are architects.

Bronx Gas & Electric Co., 43 Westchester Square, Bronx, New York, has plans for a two-story power substation, 64 x 188 ft., to cost approximately \$110,000 with equipment. Thomas E. Murray, 55 Duane Street, New York, is engineer.

Guilderland Water District Commissioners, Guilderland, N. Y., are asking bids until April 11, for two 75-gal. per min., automatic electrically operated centrifugal pumps, with accessories, and one 50,000-gal. elevated steel tank. Arnold G. Chapman, 100 State Street, Albany, N. Y., is engineer.

New York Edison Co., Irving Place and Fifteenth Street, New York, has plans for installation of third unit of 160,000

kw. capacity, at its power plant at Fourteenth Street and East River. Other units will be provided for later, to comprise nine generating units in all, with gross rating of 1,250,000 kw. Present station has capacity of 120,000 kw. Ultimate project will cost more than \$75,000,000.

Buying on a large scale is an exception, however, and most of the current business is in single machines from companies in many different lines of manufacture. A fair amount of business is coming from the automobile industry.

Among the week's purchasers were the International Harvester Co. for its Rock Island, Ill., plant, the Allis-Chalmers Mfg. Co., Milwaukee, and the National Transit Pipe Co., Oil City, Pa. The latter bought a number of turret lathes. The Cleveland Board of Education will receive bids up to April 16 on nine wood-working machines.

The Union Pacific Railroad has issued a partial list of its machine tool requirements. The Santa Fe is tabulating bids received on recent inquiries, but it will be three or four weeks before the orders are placed.

Several large inquiries for locomotive cranes are pending. Dwight P. Robinson & Co., New York, are inquiring for 11 and also for seven steam shovels for export. The Amtorg Trading Corporation, New York, has taken bids on six crawl-tread cranes and 10 locomotive cranes for the Dneiper River hydroelectric project in Russia.

P. B. Nichols, Depot Plaza, West Plains, N. Y., architect, has plans for a one-story shop for an automobile trade school at Dobbs Ferry, N. Y., to cost close to \$40,000 with equipment.

A. Riegel & Sons, Inc., 2 Hamilton Avenue, White Plains, N. Y., has asked bids on general contract for a one-story automobile service, repair and garage building, to cost about \$100,000 with equipment.

United Hardware & Tool Corporation, 74 Reade Street, New York, has acquired the five-story and basement building at 50-52 Howard Street and will improve and occupy for a new distributing plant.

Moore & Landsiedel, Third Avenue and 148th Street, New York, architects, have filed plans for a two-story automobile service, repair and garage building, 95 x 125 ft. to cost close to \$100,000 with equipment.

Noma Electric Corporation, 340 Hudson Street, New York, manufacturer of electric lighting specialties, is disposing of stock issue to total \$2,150,000, a portion of the proceeds to be used for expansion.

Department of Public Works, Perth Amboy, N. J., J. V. Smith, commissioner, contemplates construction of an additional unit at municipal electric light and power plant.

Following recent acquisition of Eastwood Wire Mfg. Co., Joralemon Street, Belleville, N. J., manufacturer of brass wire screens, etc., by new interests, arrangements are being made for change of name to Eastwood Wire Corporation. New company plans expansion, to include production of new lines, including valve manufacture.

Public Service Electric & Gas Co., Public Service Terminal Building, Newark, has plans for a two-story power switching station at Metuchen, N. J., to cost in excess of \$150,000 with equipment. A similar plant will be built at West Orange, N. J. Plans are also in progress for a two-story power substation at Princeton, N. J., to cost more than \$80,000.

V. and R. Tedeschi, Newark, care of J. B. Accocella, 9 Clinton Street, Newark, architect, have filed plans for a two-

story machine shop, 70 x 100 ft., to cost about \$45,000 with equipment.

Lawrence Motor Car Co., 390 Halsey Street, Newark, has plans for a three-story service, repair and sales building on adjoining site, to cost \$170,000 with equipment. Nadel & Fort, 32 Hill Street, are architects.

Hygienic Tube Co., 88 McWhorter Street, Newark, will soon begin superstructure for a one-story plant on Avenue L, 52 x 130 ft., for which general contract has been let to Abraham Axel, 114 Gruman Avenue, to cost \$45,000 with equipment.

A. E. Sleight, Romaine Building, Paterson, N. J., architect, has asked bids on general contract for a two-story automobile service, repair and garage building, 215 x 250 ft., to cost about \$180,000 with equipment.

Board of Education of South Orange, Parker Avenue, Maplewood, N. J., has approved plans for a one-story equipment maintenance and repair building, to cost about \$70,000 with equipment. Guilbert & Betelle, 24 Branford Place, Newark, are architects.

H. B. Salmon Co., 357 Grafton Avenue, Newark, building materials and supplies, has plans for a three-story addition for storage and distribution, to cost \$100,000 with mechanical handling equipment, etc. W. O. Bartlett, 738 Broad Street, is architect.

Leeds, Tozzer & Co., Inc., 75 West Street, New York, has been appointed distributor in railroad field of electric lift trucks and steel bound platforms manufactured by Stuebing Cowan Co., Cincinnati. Appointment also includes electric lines and steamship companies.

T. P. Steinmetz, former sales promotion manager of Commercial Investment Trust Corporation, automobile finance company, has formed Paul Murchison Co., Inc., 280 Broadway, New York, to act as sales representative and distributor in New York for several manufacturers of automotive products.

Fumaro Metal Spinning & Metal Specialty Co., 116 West Thirty-ninth Street, New York, has been incorporated to engage in spinning metal products. Company has plant at 215 Washington Street, Binghamton, N. Y., and is prepared to begin operation.

Atlas Mfg. Corporation, 1465 Broadway, New York has been formed to manufacture automobile accessories, particularly radiator ornaments. Part of work will be done under contract and part in company's own shop.

James Beggs & Co., 149 Church Street, New York, engines and boilers, grate bars, pumps and general boiler supplies, who some months ago announced their intention of discontinuing business, have changed their plans and are now prepared to take care of usual requirements in lines handled.

Conrad Foundry Co., Montgomery Street, Elizabeth, N. J., is again operating after being shut down for six months, owing to theft of aluminum, master patterns and core boxes

## New England

Boston, April 2.

**S**ALES are few and usually consist of one machine to a user. A horizontal boring machine to a Massachusetts shop was the most important transaction reported. There are still a sizable number of quotations outstanding which dealers hope to close soon. New England railroads offer the most promising field just now, but none has issued any real lists. Inquiries from Massachusetts manufacturers include a gear hobber and a 24-in. planer. New England machine tool builders collectively are fairly busy with orders received from other parts of the country. Makers of grinding equipment and high priced lathes are especially busy.

Small tool business has dropped, an indication that activity among metal working shops is less than was anticipated April 1. There is still a large surplus of machinists and other skilled help in New England.

Leominster Tool Co., 96 Mechanic Street, Leominster, Mass., has awarded contract for a one-story plant, 40 x 100 ft. Plans are private.

Work has started on a one-story, 30 x 135 ft. plant for Waterhouse Co., Tracy Street, Webster, Mass., bus and automobile bodies.

Gulf Refining Co., Barrington Parkway, East Providence, R. I., has started erection of a one-story garage and repair shop, 100 x 140 ft. W. J. K. Kennedy is manager.

Hopkins Mfg. Co., Allston district, Boston, laundry machinery, is moving to Philadelphia, where it will operate under name of Hopkins-Tull Co.

Hedstrom Union Co., 319 Main Street, Gardner, Mass., baby carriages, has plans for a four-story, 40 x 60-ft., and three-story, 60 x 130-ft. additions. G. Adolph Johnson, 16 Norwich Street, Worcester, Mass., is architect.

Conlon Mfg. Co., 42 Baldwin Street, Bridgeport, Conn., has been formed to manufacture shoe machinery. Company has purchased tools, patterns, plant machinery and equipment and will buy castings and other materials locally.

Furnace Improvement Co., 511 Westminster Street, Providence, has been appointed New England representative for National Flue Cleaner Co., Groveville, N. J., manufacturer of soot blowers for fire tube boilers.

G. L. Gray Sheet Metal Works, New Haven, Conn., will establish plant at 509 Grand Avenue, to specialize in production of blow piping, special fittings and kindred products.

Peerless Pressed Metal Co., 14 Electric Avenue, Brighton, Boston, has asked bids on general contract for a new one-story plant, 75 x 300 ft., at Watertown, Mass., to cost upward of \$65,000 with equipment.

Fuller Brush Co., Hartford, Conn., is arranging for expansion in facilities for new lines of production, including manufacture of portable electrically-operated dish-washing machine.

Municipal Light Board, Chicopee, Mass., has awarded general contract to La France Construction Co., Holyoke, Mass., for one-story municipal service and repair shop, with garage facilities, to cost about \$80,000 with equipment.

Frank B. Perry, Inc., 44 Franklin Street, Providence, R. I., architect, has plans for an eight-story automobile service, repair and garage terminal, to cost about \$850,000 with equipment.

Northern Connecticut Power Co., Thompsonville, Conn., is said to have plans for a hydroelectric power plant at Windsor Locks, Conn., including construction of power dam and transmission lines, to cost in excess of \$650,000. J. G. White Engineering Corporation, 43 Exchange Place, New York, is engineer.

New England Transportation Co., New Haven, Conn., has plans for a one-story repair shop, with garage facilities, at Danbury, Conn., to cost approximately \$50,000 with equipment. W. T. Dorrance, Avon Street, New Haven, is architect.

Bryant Electric Co., Bridgeport, Conn., manufacturer of electrical equipment, has purchased local factory and business of Benco Mfg. Co., manufacturer of similar devices, and plans to increase line of production. R. A. Carson is vice-president and general manager of purchasing company.

## Cleveland

CLEVELAND, April 2.

**M**ACHINE tool sales were rather slow the past week. Total business taken during March was about the same as in February. Inquiry has come out for considerable equipment for a new plant being erected in Toledo by the Spicer Mfg. Corporation, South Plainfield, N. J., to be operated by a separate company known as the Dana Mfg. Co. This will include automatic screw machines and other types of tools. The National Transit Pipe Co., Oil City, Pa., has purchased four turret lathes from a Cleveland manufacturer and three or four similar machines from another source. There is not much activity in the Detroit market, as inquiry from the automotive industry is still light.

Cleveland Board of Education will receive bids April 16 for the following metal and wood-working equipment for the Alexander Hamilton Junior High School.

One 11-in. x 5-ft. lathe.  
Two 2-wheel electric grinders.  
One wood turning lathe, 7-ft. bed.  
One wood turning lathe, 4-ft. bed.  
One 12-in. hand jointer.  
One 30-in. band saw.  
One saw bench.  
One portable sanding machine.

Acme Auto Radiator Co., 7707 Carnegie Avenue, Cleveland, is considering plans for a two-story addition, to cost in excess of \$40,000 with equipment.

Butler Mfg. Co., 1812 East Twenty-fourth Street, Cleveland, manufacturer of street-sweeping machinery and parts, is completing arrangements for a one and two-story plant in Mogadore Valley section, Akron, Ohio, to cost approximately \$100,000 with equipment. Bids have been asked on revised plans by Harpster & Billman, Flatiron Building, Akron, architects.

Firestone Tire & Rubber Co., Akron, plans construction of new two-story factory branch and distributing plant at Richmond, Va., to cost in excess of \$200,000 with equipment.



## The Crane Market

**D**EMAND for electric hoists has been quite large recently and several sizable lists have been closed. The Mergenthaler Linotype Co., Brooklyn, N. Y., has closed on 54, the Bethlehem Shipbuilding Co., Wilmington, Del., was reported last week to have closed on nine and the Campbell Soup Co., Camden, N. J., is about to place 25 half-ton electric hoists. In electric overhead cranes the New York Central Railroad is expected to issue an inquiry soon for a 100-ton crane for Harmon, N. Y. There is a fair volume of current inquiry. The locomotive crane market, with the addition of the list of Dwight P. Robinson & Co., New York, has an extraordinary number of large lists under quotation. There is an inquiry from the Amtorg Trading Corporation, 165 Broadway, New York, for six crawl-tread locomotive cranes and one 25-ton standard gage crane for Russia, on which the exporter is seeking shorter terms of payment from the Russian Government and a later inquiry of the same company for nine 40-ton locomotive cranes for the Dneiper River hydroelectric project. The list of Dwight P. Robinson & Co., originally for eight locomotive cranes and seven steam shovels for export has been increased to 11 locomotive cranes. The Carnegie Steel Co. is taking prices

on four cranes to serve the new bar mill to be installed at McDonald works, McDonald, Ohio.

Among recent purchasers are:

Lukens Steel Co., Coatesville, Pa., 10-ton, 84-ft. 11½-in. span electric crane from Niles Crane Corporation.

Reading Railroad, Reading, Pa., two 225-ton and one 50-ton overhead traveling cranes from unnamed builder.

Todd Shipyards Corporation 25 Broadway, New York, two crawl-tread locomotive cranes with 100-ft. booms for steel erection from Western builder.

Mergenthaler Linotype Co., Brooklyn, N. Y., 52 1-ton and four 2-ton electric hoists from the American Engineering Co.

E. L. Phillips & Co., 50 Church Street, New York, 5-ton, single I-beam hand power crane for Long Island Lighting Co., from H. D. Conkey & Co.

International Harvester Co., Milwaukee, 5-ton Gantry crane from Whiting Corporation.

Sellers Mfg. Co., Chicago, 22-ton, 8-wheel locomotive crane from Orton Crane & Shovel Co.

Hinde & Dauch Paper Co., Sandusky, Ohio, manufacturer of corrugated fiber boxes, etc., is reported planning a new mill at Kansas City, Mo., for its subsidiary, Kansas City Fibre Box Co., to cost more than \$750,000 with machinery.

North American Mfg. Co., 8918 Frederick Avenue, Cleveland, manufacturer of oil burning equipment and devices, has awarded general contract to Philip Kirschner Co., 2725 Pittsburgh Avenue, for a one-story plant to cost about \$35,000 with equipment.

Ohio Public Service Co., Hanna Building, Cleveland, will soon take bids for a one-story equipment storage and distributing plant at Elyria, Ohio, to cost approximately \$80,000 with equipment. R. S. Silsbee, Elyria Savings & Trust Building, Elyria, is architect.

International Harvester Co., 606 South Michigan Avenue, Chicago, is said to have plans under way for a one-story service and distributing and factory branch at Cleveland, to cost about \$100,000 with equipment. Local offices are at 2905 Chester Avenue.

## Philadelphia

PHILADELPHIA, April 2.

**A** THREE-STORY building, 18 x 120 ft., at 1327 Girard Avenue, has been purchased by National Airoil Burner Co., Ninth and Thompson Streets, Philadelphia, manufacturer of oil burners, etc., be used for expansion.

Richmond Machine Co., 3445 Richmond Street, Philadelphia, has awarded general contract to N. Hoffman, 1924 East Monmouth Street, for a one-story machine shop, to cost about \$21,000 with equipment.

Sprout, Waldron & Co., Muncy, Pa., have been making inquiries for a grinding machine, about 30-in. swing, for installation at their plant.

Reading Co., Reading Terminal, Philadelphia, is arranging for establishment of motor bus lines in Schuylkill County to replace several short line steam railroads, with initial investment estimated at \$1,000,000, to include construction of large multi-story service, repair and garage terminals at Doylestown and Pottsville, Pa. Similar plants will be built in other cities on route at a later date.

Board of Trustees, University of Delaware, Newark, Del., has plans for a new engineering building, to cost in excess of \$150,000 with equipment. Charles Z. Klauder, Franklin Bank Building, Philadelphia, is architect.

Edward H. Reuss, Jr., Thirtieth and Race Streets, Philadelphia, manufacturer of pipe, heating equipment, etc., is taking bids on general contract for a one-story pipe-bending and fabricating plant, to cost about \$150,000 with equipment. Philip H. Johnson, Widener Building, is architect.

State Board of Education, Trenton, N. J., is reported planning a one-story manual training and industrial school at Bordentown, N. J., to cost in excess of \$175,000 with equipment. Charles N. Leatham, Jr., State Office Building, Trenton, is architect.

Viscose Co., Marcus Hook, Pa., is said to be contemplating a new mill at Meadville, Pa., for production of cellulose acetate, to cost more than \$850,000 with machinery. Plant will include a steam power house, machine shop and other mechanical departments. Ballinger Co., Twelfth and Chestnut Streets, Philadelphia, is architect and engineer.

Board of Trustees, Lehigh University, Bethlehem, Pa., has awarded general contract to Irwin & Leighton, 1505

Race Street, Philadelphia, for a three-story mechanical and electrical building and laboratory, to be known as James Ward Packard Memorial, to cost \$1,000,000 with equipment. Visscher & Burley, 51 East Forty-second Street, New York, are architects.

American Manganese Steel Co., New Castle, Del., has awarded general contract to John E. Healy & Son, 707 Tatnall Street, Wilmington, Del., for a one-story foundry addition, to cost \$50,000 with equipment.

William H. Aretz, 5401 Rising Sun Avenue, Philadelphia, and associates have organized Kirby Iron Works to operate a plant at Lansdale, Pa., for production of ornamental iron specialties. Thornton L. Kirby, 1705 Champlott Avenue, Philadelphia, will be head.

Crane Co., 212 South Thirteenth Street, Philadelphia, manufacturer of pipe, valves, etc., with headquarters at 836 South Michigan Avenue, Chicago, is said to be planning a one-story factory branch and distributing plant at Norristown, Pa., to cost about \$40,000.

Bellanca Aircraft Corporation, du Pont Building, Wilmington, Del., recently organized, has awarded general contract to John E. Healy & Son, 707 Tatnall Street, for initial unit of new airplane manufacturing plant near New Castle, Del., to cost in excess of \$50,000. First building will be used largely for assembling.

E. R. Bitting, 1104 Hamilton Street, Allentown, Pa., architect, has plans for a three-story automobile service, repair and garage building, 60 x 120 ft., to cost more than \$100,000 with equipment.

Sunbury School District, Sunbury, Pa., is considering installation of manual training equipment in new high school, to cost about \$190,000, for which plans will be drawn by C. J. Lapple, Parkside Building, Harrisburg, Pa., architect.

Distribution of Peter Stubs' drill rod, files and tools in Philadelphia territory is now handled by James A. Stairs, 322 New Street, Philadelphia.

## Chicago

CHICAGO, April 2.

**I**NTEREST in railroad requirements of machine tools has been revived by a list which has been issued by the Union Pacific. The list is not complete and will be augmented at an early date. In the meantime, quotations made to the Santa Fe are being tabulated and it may be three or four weeks before orders are placed. Allis-Chalmers Mfg. Co., Milwaukee, has purchased several 30-in. and one 60-in. boring mills. An electrical appliance manufacturer in Chicago has ordered a 14-in. x 6-ft. engine lathe. International Harvester Co., has made extensive purchases for its Rock Island and two Chicago plants. Buying, although for the most part scattered, is in good volume, and fresh inquiry gives promise that April business will be satisfactory. There is an active demand for used machine tools.

Chicago Pump Co., 2386 Wolfram Street, Chicago, will erect a factory, 116 x 125 ft. Alfred S. Alschuler, 28 East Jackson Boulevard, is architect.

Western Architectural Iron Co., 211 West Schiller Street, Chicago, has filed plans for a one-story unit, 100 x 125 ft., to cost more than \$60,000 with equipment.

Greenleaf-Greenwood Garage Corporation, 924 Ainslie Street, Chicago, Joseph Tennes, in charge, has plans for a four-story service, repair and garage building, to cost about \$250,000 with equipment. Rissman & Hirschfield, 228 North La Salle Street, are architects.

Diamond Motor Parts Co., St. Cloud, Minn., has arranged for merger with Gill Mfg. Co., 8300 South Chicago Avenue, Chicago, manufacturer of piston rings, and Schleidler Mfg. Co., Milford, Mich., manufacturer of kindred products. Plants will be removed to St. Cloud where operations will be concentrated in future.

Iowa Public Service Co., Waterloo, Iowa, has arranged for bond issue of \$1,500,000, a portion of proceeds to be used for expansion in power facilities and transmission lines, including purchase of a substantial interest in Sioux City Gas & Electric Co., Sioux City, Iowa. D. M. Stearns is president.

Noble J. Hursh, 2507 West Harrison Street, Chicago, operating a screw machine products plant, has acquired a one-story plant, 50 x 125 ft., at 4708 Armitage Avenue, for expansion.

Central Plumbing & Heating Supply Co., 731 North Wells Street, Chicago, will soon take bids on revised plans for a two-story plant, to cost about \$100,000 with equipment; portion of structure will be used for storage and distributing service. Edmund Grossman, 139 North Clark Street, is architect. M. P. Kaplan is president.

Monighan Mfg. Corporation, Chicago, has been organized to take over and expand Monighan Machine Co., 931 North Kilpatrick Avenue, manufacturer of excavating machinery and parts, including dragline excavators. New company has arranged for stock issue to total \$980,000, a portion of fund to be used for extensions and improvements.

Board of Education, Rochester, Minn., will take bids in April for new central steam power plant for high and central school buildings, to cost approximately \$65,000. Ellerbe & Co., Endicott Building, St. Paul, Minn., are architects.

John Deere Tractor Co., Miles Street, Waterloo, Iowa, has awarded general contract to Jens Olesen & Son Construction Co., 1522 Lafayette Street, for a one-story addition, 120 x 120 ft., to cost about \$40,000.

Kelly Mfg. Co., 131 South Fifth Avenue, Clinton, Iowa, is considering construction of new plant for manufacture of furniture to cost about \$50,000 with equipment. A. H. Morrell, Weston Building, is architect.

Standard Oil Co., 910 South Michigan Avenue, Chicago, has filed plans for a one-story storage and distributing plant, 100 x 140 ft., to cost \$110,000 with equipment.

Naylor-Hickey Corporation, 643 Washington Boulevard, Chicago, has been appointed representative in that district for National Flue Cleaner Co., Groveville, N. J., manufacturer of soot blowers for fire tube boilers.

Vergan-Schmidt Mfg. Co., Dubuque, Iowa, has been formed by a merger of Dubuque Tractor & Truck Co., Dubuque, and Vergan-Schmidt Co., Champaign, Ill., and will manufacture heavy construction handling equipment, garage tools and woodwork specialties. Equipment at Champaign is being transferred to Dubuque where operations will be concentrated.

## Buffalo

BUFFALO, April 2.

BIDS will soon be asked by Great Lakes Portland Cement Co., Marine Bank Building, Buffalo, A. L. Beck, president, for new mill on Cuyahoga River, vicinity of Cleveland, to cost close to \$1,000,000 with machinery. F. C. Pisk, Allentown, Pa., is company engineer.

Trico Products Co., 624 Ellicott Street, Buffalo, manufacturer of automobile accessories, has filed plans for an addition to cost upward of \$175,000 with machinery.

Buffalo Flour Mills Corporation, Chamber of Commerce Building, Buffalo, plans rebuilding portion of mill destroyed by fire March 27, with loss reported at \$200,000 including equipment.

Board of Contract and Supply, City Hall, Syracuse, N. Y., has plans under way for a two-story repair shop, with equipment, storage and distributing facilities for Water Supply Department, to cost approximately \$80,000 with equipment. Nelson F. Pitts, Jr., City Hall, is city engineer.

Raymond A. Williams, 506 Delaware Avenue, Buffalo, and associates have organized Harmor & Co., with capital stock of \$100,000, to establish and operate a local plant for manufacture of air compressors, parts, and others mechanical equipment.

Division of Standards and Purchase, Executive Department, Capitol Building, Albany, N. Y., is asking bids until

April 19 for a pumping plant for Thomas Indian School, Iroquois, town of Collins, Erie County. Plans and specifications at office of school and office of chief engineer, Department of Public Works, Capitol Building, Albany.

Cyclone Fence Co., Waukegan, Ill., has established a branch distributing center and warehouse at 405 North Lowell Avenue, Syracuse, N. Y., with W. J. Murray in charge.

## South Atlantic States

BALTIMORE, April 2.

WORK will begin by Bethlehem Shipbuilding Corporation, Key Highway, Baltimore, for new plant unit, with main one-story structure, 80 x 600 ft., for steel fabricating department, machine shops, forge and blacksmith shop, foundry, sheet metal-working shops, pipe shops, etc. Project will include a 7000-ton floating drydock and one-story power house. Entire program will cost about \$2,000,000 with machinery. J. M. Willis is general manager.

City Council, Charlotte, N. C., has filed plans for one-story municipal automobile service, repair and garage building, 115 x 310 ft., to cost about \$85,000 with equipment.

Southern Light & Power Co., Centreville, Md., has acquired plant and system of Millington Electric Light & Power Co., Millington, Md., and plans extensions and improvements, including transmission line construction.

Quartermaster Supply Officer, Washington, will receive bids until April 13 for one bench lathe, circular 94.

Virginia Cellulose Co., Inc., Hopewell, Va., has approved plans for one-story steam power house, to cost about \$125,000 with equipment.

Virginia Electric & Power Co., Richmond, Va., has plans for new power house at Norfolk, Va., to cost \$250,000 with equipment. Stone & Webster, Inc., 49 Federal Street, Boston, is engineer. Company is arranging for bond issue of \$8,000,000 and preferred stock to total about \$5,000,000, a considerable portion of proceeds to be used for expansion, including transmission line construction.

Board of District Commissioners, District Building, Washington, is asking bids until April 23 for metal-working machinery for public schools, including lathes, band saws, jointer, surfacers, grindstones, drill press, sanders, three electric glue heaters, drills, trimmers, etc.; until April 12 for six distributing transformers for McKinley Technical High School.

Newman Ice & Fuel Co., Raleigh, N. C., has authorized construction of one-story ice-manufacturing plant at Sanford, N. C., to cost about \$35,000 with equipment.

Consolidated Electrical Appliances, Pratt and Concord Streets, Baltimore, has acquired for expansion factory heretofore held by Liberty Yeast Corporation.

Patapsco Power, Light & Mineral Co., Marriottsville, Md., recently organized, with capital of \$100,000 by Wade H. D. Warfield, Sykesville, Md., and associates, is planning for development of feldspar and limestone properties at Marriottsville. A quarrying plant, grinding and pulverizing mill will be installed, to cost about \$70,000.

Stoneform Corporation of America, Inc., 1253 Twenty-third Street, N. W., Washington, has acquired property at Loughborough, Md., as site for new plant for manufacture of fabricated stone, to cost about \$45,000 with machinery. L. E. Harter is general manager.

General purchasing officer, Panama Canal, Washington, is asking bids until April 13 for 36,000 ft. wire rope, two power hacksaw machines, one steam hammer, five air motor hoists with trolley, 16 buffing and grinding machines, two arbor presses and other tools and equipment, Panama schedule 1868.

Kelly-Springfield Tire Co., Cumberland, Md., has taken out a permit for a one-story addition, to cost about \$100,000 with equipment.

Central Atlantic Service Corporation, 20 Broad Street, New York, has concluded arrangements for purchase of plant and property of Hygienic Ice & Cold Storage Co., Pulaski, Va., and is said to be contemplating a new ice-manufacturing plant on site, to cost close to \$100,000 with machinery.

Atmospheric Nitrogen Corporation, Hopewell, Va., will make extensions and improvements in plant to cost about \$180,000. A gantry crane and other equipment will be installed.

Engineers Public Service Co., Richmond, Va., an interest of Stone & Webster, Inc., Boston, engineer, has arranged for preferred stock issue of \$32,000,000, a portion of proceeds to be used for extensions and improvements in properties and transmission lines in Virginia, Louisiana, Texas, New Mexico, and other localities.

Greensboro Ice & Fuel Co., Banner Building, Greensboro, N. C., Robert H. Frazier, head, recently organized, has acquired property and is considering erection of a new ice-

manufacturing plant, to cost more than \$40,000 with equipment.

City Council, Charlotte, N. C., has awarded general contract to Southeastern Construction Co., 210 West Second Street, for one-story municipal service and repair shop, 100 x 300 ft., with garage facilities, to cost about \$80,000 with equipment. C. C. Hook, Commercial Bank Building, is architect.

## Detroit

DETROIT, April 2.

**A** NEW company, Michigan Power Shovel Co., is being formed by John Hursh, manager Michigan File Co., Lansing, Mich., and associates, to manufacture a small power shovel for use with tractors. Local building has been leased for parts manufacture and assembling.

Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich., has asked bids on general contract for a two and one-half story addition, to cost close to \$900,000 with machinery. Billingham & Cobb, Pythian Building, are architects. Jacob Kindlebarger is president.

Accuralite Co., Muskegon, Mich., manufacturer of pistons, cam shafts, etc., is planning erection of new factory at Muskegon Heights to cost in excess of \$60,000, and will remove to new location.

Detroit Gray Iron Foundry Co., Wight Street, Detroit, has filed plans for a new one-story foundry, 115 x 125 ft., to cost upward of \$65,000 including equipment.

Michigan Rubber Co., Owosso, Mich., has begun erection of one-story plant unit, to cost close to \$75,000 including equipment.

Hill-Curtiss Co., Pitcher Street, Kalamazoo, Mich., manufacturer of wood-working machinery and parts, will soon take bids on general contract for a one and two-story addition to cost about \$35,000. Billingham & Cobb, Pythian Building, are architects.

Ward Mail Box Co., Buchanan, Mich., is arranging an expansion and improvement program for increase in output. A building has been leased from Ward Electric Refrigerator Co. and will be used primarily for manufacture of new products, including telephone equipment, suitable for use in apartment houses.

City Council, Northville, Mich., is said to be planning installation of pumping machinery and other equipment in connection with extensions in municipal waterworks. Wellington Roberts is city engineer.

Consolidated Electric Sign Co., Opalume Division, Battle Creek, Mich., will soon take bids on general contract for a two-story plant, to cost about \$80,000 with equipment. It will replace a factory destroyed by fire. L. J. Sarvie, Jr., 65 East Main Street, is architect.

Consumers Power Co., Jackson, Mich., has plans for a hydroelectric power development in Mecosta-Newaygo district, to be known as Ox-Bow power station, to cost close to \$10,000,000 with power dam and transmission lines. Initial plant will have a capacity of 35,000 hp.

## Pittsburgh

PITTSBURGH, April 2.

**M**ACHINE tool business has slumped in this district, and while March as a whole made a good showing compared with February and the same period last year, sales and inquiry have been falling off since about the middle of the month.

Pittsburgh Lamp & Artcraft, Inc., recently organized, has acquired property at Monongahela, Pa., for plant to manufacture metal lamps, art metal furniture and kindred products. C. A. Ross is president.

Ovens, power equipment, conveying and other machinery will be installed in three-story and basement addition, 88 x 130 ft., to plant of National Biscuit Co., 6145 Penn Avenue, Pittsburgh, to cost about \$350,000. Headquarters are at 85 Ninth Avenue, New York; L. J. Wirsching, Jr., is company architect.

Sloan & Zook Producing Co., Fullerton, near Bradford, Pa., operating oil plants and properties, has arranged for a bond issue of \$500,000 and preferred stock issue of \$250,000, a portion of proceeds to be used for expansion and installation of additional equipment. Ralph E. Davis, Union Bank Building, Pittsburgh, is engineer.

Bids will be asked at once by Allegheny Metal Products Co., 1902 Brighton Road, Pittsburgh, for two-story plant, including machine shop, at Verona, Pa. P. C. Gasparin is head.

Board of Education, Lumberport, W. Va., is considering installation of manual training equipment in two-story high school, for which bids will be received on general contract

April 26, to cost more than \$175,000. S. W. Ford, Latstetter Building, Clarksburgh, W. Va., is architect.

Pittsburgh Heater Co., Pittsburgh, recently organized by R. B. Sattler, 338 Wabana Avenue, and associates, with capital stock of \$60,000 and 40,000 shares common stock, no par value, contemplates operation of local plant for production of boilers, radiators, fittings, etc. R. E. Reuss, 1739 Chislett Street, Pittsburgh, is also interested in company.

Shenango Motor Co., New Castle, Pa., has plans for two-story service, repair and garage building, to cost about \$180,000 with equipment. F. H. Foulk, Fairmont Cedar Building, Cleveland Heights, Ohio, is architect.

J. M. Carskadon, president Palace Furniture Co., Clarksburgh, W. Va., is head of company being organized with capital stock of \$150,000 to construct and operate a new furniture and cabinet plant, to cost more than \$80,000 with equipment. Property has been acquired adjoining local plant of Fuel City Box & Lumber Co. and work will soon begin. William Rogers, head of last noted company, is interested in new organization.

Electrolux, Inc., Bessemer Building, Pittsburgh, manufacturer of vacuum cleaners, etc., is considering plans for one-story factory branch and distributing plant to cost about \$35,000.

William K. Stamets, machine tools and machinery, has moved into larger quarters at 4026 Jenkins Arcade Building Pittsburgh.

McCoy-Brandt Machinery Co., Pittsburgh, has moved from 210 Penn Avenue to 50 Penn Avenue.

## Indiana

INDIANAPOLIS, April 2.

**W**ORK is being completed on new plant unit, 300 x 300 ft., by American Steel & Wire Co., Anderson, for manufacture of wire fabric, to cost more than \$200,000 with equipment. Harry O'Connor is superintendent.

Richmond Fireproof Door Co., Richmond, is planning a one-story addition, to cost about \$35,000 with equipment.

Bishop, Knowlton & Bishop, 312 North Meridian Street, Indianapolis, architects, have taken out permit for a three-story and basement automobile service, repair and garage building, 100 x 170 ft., to cost about \$100,000 with equipment.

Sarl Stone Co., Bloomington, is considering plans for one-story mill, to cost approximately \$85,000 with cutting, grinding, polishing and other equipment.

Board of Education, Princeton, contemplates installation of manual training department in two-story high school in Patoka Township to cost approximately \$100,000. Sutton & Rountt, Citizens' Bank Building, Vincennes, Ind., are architects.

Western Oil Co., Indianapolis, care of Bishop, Knowlton & Carson, 312 North Meridian Street, architects, has filed plans for a one-story repair shop, to cost about \$45,000 with equipment.

Indiana General Service Co., Muncie, has closed contract with City Council, Anderson, for power supply and will build a 132,000-volt transmission line to that place. A power substation will be constructed near city limits. Anderson municipal power department will also build transmission lines and install switching equipment for service to local industries. Entire project is reported to cost more than \$100,000.

Board of Works, City Hall, Indianapolis, plans installation of pumping machinery and other power equipment in connection with sewage disposal plant at Broad Ripple, to cost about \$550,000. A. H. Moore, City Hall, is engineer; C. G. Hurd, Merchants' Bank Building, is architect.

Warner Gear Co., Muncie, Ind., will build a factory unit, 50 x 140 ft.

## St. Louis

ST. LOUIS, April 2.

**P**LANs are being considered by Oklahoma City Brass Pipe Co., Oklahoma City, Okla., for a one-story foundry, to cost about \$35,000 with equipment.

Modern Products Co., Tulsa, Okla., has approved plans for one-story foundry, machine shop and plating works, 90 x 350 ft., for manufacture of valves and kindred specialties, to cost upward of \$90,000 with equipment.

B. & Y. Motor Co., 4517 Troost Street, Kansas City, Mo., is considering a new service, repair and garage building, to cost approximately \$100,000 with equipment.

L. J. Kent Boiler & Sheet Iron Works, Inc., Springfield, Mo., is asking bids for excavations and foundations for its new plant; bids will soon be called for superstructure, one story, 80 x 160 ft., to cost about \$40,000 with equipment.

Central Oklahoma Service Co., Oklahoma City, Okla., has arranged for bond issue of \$1,000,000, a portion of fund to



be used for additions and improvements, including transmission line construction. Company is operated by Southwest Utility Ice Co., Oklahoma City.

Great Plains Mill & Elevator Co., 223 East Randolph Street, Enid, Okla., is reported planning a new flour mill, to cost in excess of \$450,000 with machinery.

Ovens, power equipment, conveying and other machinery will be installed in four-story and basement plant and distributing station, 100 x 300 ft., to be built by Great Atlantic & Pacific Tea Co., Graybar Building, New York, at St. Louis, to cost about \$650,000 with equipment. Austin Co., Arcade Building, St. Louis, is engineer.

Waxide Paper Co., 404 Admiral Street, Kansas City, Mo., is considering a new one-story and basement plant at St. Louis, 150 x 275 ft., for manufacture of processed papers, to cost more than \$200,000 with equipment.

Wirt Franklin Oil Co., Ardmore, Okla., plans addition to gasoline refinery, to cost more than \$85,000 with equipment.

Jaden Mfg. Co., Hastings, Neb., manufacturer hardware specialties, has filed plans for one-story unit, 120 x 245 ft., to cost approximately \$55,000 with equipment.

Curtiss-Robertson Airplane Mfg. Co., St. Louis, care of McDonald & Condie, 205 North Taylor Avenue, architects, has awarded general contract to J. S. Alberici, Boatmen's Bank Building, for a new plant at Anglum, near St. Louis, comprising three units, one story, 60 x 250 ft.; one story, 40 x 60 ft., and two stories, 40 x 60 ft., to cost about \$80,000 with equipment.

Usona Mfg. Co., Chouteau Avenue, St. Louis, manufacturer of architectural and ornamental iron, has asked bids for one-story addition, 75 x 80 ft., to cost about \$24,000.

Colonial Steel Co., Pittsburgh, has purchased property at 712 Cass Avenue, St. Louis, and has let contract to W. C. Harting Construction Co., St. Louis, for erection of office and warehouse for distribution in Middle West and Southwest for high speed, carbon, alloy and drill steels.

Mideke Supply Co., 100 East Main Street, Oklahoma City, has been appointed representative in Oklahoma City and vicinity of Foote Brothers Gear & Machine Co., 215 North Curtis Street, Chicago, manufacturer of speed reducers, gear products and general transmission machinery.

## Cincinnati

CINCINNATI, April 2.

**P**REDICTION made a week ago that machine tool sales in the first quarter this year will run about 25 per cent ahead of those in the same months of 1927 has been further borne out by developments in the past few days. In fact, a number of prominent companies assert that bookings have been at least 50 per cent ahead of those last year, but this percentage as it applies to the local industry as a whole has been cut in half by the experience of a group of builders which has not fared so well.

Considerable business is coming from automobile manufacturers and buyers in the general industrial field. Seldom, however, are customers purchasing more than one or two machines at a time, absence of individually large transactions being noticeable. Almost without exception companies interested in buying equipment are demanding either standard tools specially adapted to high production work or machines which are entirely of special design for the same purpose.

Plans have been authorized by Board of Trustees, Wilberforce University, Xenia, Ohio, for one-story power house to cost about \$150,000 with equipment. Herbert B. Briggs, Hartman Hotel Building, Columbus, Ohio, is State architect in charge.

Columbus, Delaware & Marion Electric Co., Marion, Ohio, is said to have plans under way for rebuilding of car barn, shop and power house at Delaware, Ohio, destroyed by fire several months ago with loss of more than \$70,000. G. B. Day is in charge.

Air Corps, Material Division, Wright Field, Dayton, Ohio, is asking bids until April 11, for springs, hub bushings, fuel cock assemblies, etc., circular 234; induction compasses and tachometers circular 285.

Acme Tool Co., 250 North Findlay Street, Dayton, Ohio, has awarded general contract to Hillsmith & Co., Dayton, for one-story machine shop, to cost about \$25,000 with equipment.

Hibbler-Barnes Co., 710 East Tenth Street, Chattanooga, Tenn., building materials, is said to be arranging an expansion and improvement program to cost about \$200,000, including installation of mechanical-handling and conveying equipment, etc.

United States Foil Co., Thirtieth Street and Grand Avenue, Louisville, has awarded general contract to J. E. Boswell & Co., 1107 East Broadway, for an addition, 112 x 200 ft., with adjoining structure, 100 x 200 ft., for storage and distribution to cost about \$400,000 with equipment. Ossian P. Ward, Lincoln Bank Building, is architect.

Xenia Fertilizer Co., Xenia, Ohio, plans new two-story mill, 80 x 160 ft., to replace plant recently destroyed by fire, to cost about \$55,000 with equipment. Grinding and mixing machinery, electrical and other power equipment, etc., will be installed.

Board of Trustees, Christ Hospital, Auburn Avenue, Cincinnati, has authorized plans for a new power house and mechanical laundry unit, to cost about \$300,000 with equipment. Tietig & Lee, Merchants' Building, are architects.

Rendigs, Panzer & Martin, Southern Ohio Bank Building, Cincinnati, architects, have filed plans for a three-story automobile service, repair and garage building, to cost \$150,000 with equipment.

B. J. Wehner Welding Co., Inc., 1725 Mellwood Avenue, Louisville, has been organized to conduct a general welding business, particularly in tanks and boilers. Company will engage in retubing and repairing upright and pressure boilers. Building has been rented and no additional equipment is needed at present.

## Gulf States

BIRMINGHAM, April 2.

**P**LANs are being considered by Wackman Welded Ware Co., Victor and Seventieth Streets, St. Louis, for a one-story branch plant at Houston, Tex., largely for manufacture of steel drums for oil service, to cost \$45,000 with machinery.

Texas Water Utilities Co., Cameron, Tex., operating waterworks, ice-manufacturing plants and other utilities, has arranged for a bond issue of \$1,000,000, a portion of proceeds to be used for expansion and betterments.

Magnolia Gas Products Co., 506 South Medina Street, San Antonio, Tex., will erect a one-story plant for manufacture of industrial gases, to cost more than \$50,000 with equipment.

Hygia Products Co., Houston, Tex., recently formed by D. C. Lingo, 4126 Polk Street, and associates, will build a one-story ice-manufacturing plant to cost about \$30,000.

Big Lake Refining Co., Big Lake, Reagan County, Tex., care of Big Lake Chamber of Commerce, has plans for initial unit of oil refinery for output of 1000 bbl. per day. E. B. McKee, San Antonio, Tex., is one of heads of company, which was recently organized.

Holliday Life-Saving Headlight Co., Jackson, Miss., T. C. Holliday, Edwards Hotel Building, head, plans erection of one-story factory for manufacture of special automatic headlighting equipment, reported to cost about \$25,000.

Syndicate Power Co., Abilene, Tex., operated by Middle West Utilities Co., 72 West Adams Street, Chicago, is completing plans for hydroelectric power project on Colorado River, vicinity of Abilene, to cost more than \$500,000 with power dam and transmission system.

United Carbon Co., Charleston, W. Va., is considering construction of two new carbon black plants at Sanford and Stinnett, Tex., to cost in excess of \$100,000 each, with air compressors, boilers and other power equipment. Work is in progress on a similar three-unit plant near Borger, Tex.

Benjamin Sibblitt, head of the Ben Sibblitt Iron & Foundry Co., Wichita, Kan., is at the head of a company being organized at Dallas, Tex., to construct and operate a plant on West Dallas Pike for production of gray iron castings. Initial unit will cost close to \$40,000 and is scheduled for completion within three months. Charles Sibblitt, Dallas, formerly connected with Wichita company, will be an official of new organization.

Southwestern Irrigated Cotton Growers' Association, First National Bank Building, El Paso, Tex., Gowan Jones, president, plans construction of one-story cottonseed oil mill, to cost more than \$100,000 with machinery.

R. B. George Machinery Co., Dallas, Tex., manufacturer and distributor of oil well machinery and road-building equipment, has work in progress on a one-story plant unit, 60 x 300 ft., to cost more than \$80,000 with equipment.

Roman & Talbert, Mercedes, Tex., are considering construction of one-story general machine and repair shop, to cost about \$40,000 with equipment.

General Motors Corporation, Detroit, is reported contemplating an assembling plant at Tampa, Fla., to be used largely for export trade to South America, to cost more than \$200,000.

John H. Overton and John E. Thorsell, Alexandria, La., have plans for a one-story automobile service, repair and garage building, 195 x 215 ft., to cost about \$70,000 with equipment.

Breckenridge Foundry & Supply Co., Mineral Wells, Tex., W. S. Slingerup, president, recently reorganized, is said to

be contemplating removal of plant to Breckenridge, Tex., where capacity will be increased.

Southern Ice & Utilities Co., Santa Fe Building, Dallas, Tex., is arranging for a new ice-manufacturing plant, 130 x 275 ft., at Big Spring, Tex., to cost upward of \$150,000 with equipment.

Birmingham Pressed Steel Co., First Avenue, Birmingham, is contemplating rebuilding plant unit at Pratt City, Ala., recently destroyed by fire with loss close to \$27,000 with equipment.

Anniston Roller Covering Works, Anniston, Ala., manufacturer of textile mill equipment, is said to be planning extensions and installation of additional machinery.

## Milwaukee

MILWAUKEE, April 2.

**P**ROSPECTS for April business in machine tools are considered favorable in view of improvement of inquiry in the last ten days of March, and anticipated action on estimates that have been put forth in recent weeks. March trade, while hardly as large as a year ago, represented the best month's volume this year. Demand is urgent, most orders being for one or two machines, delivery of which is pressed. Numerous industrial projects that have been awaiting developments are now giving promise of a broader machine tool market.

Modine Mfg. Co., 1700 Racine Street, Racine, Wis., manufacturer of radiators and cooling systems, contemplates an additional investment of \$100,000 in plant extensions and new equipment. Details have not been fully decided upon, but plans will be ready about May 1.

Ormsby Auto Equipment Co., 1116 Wells Street, Milwaukee, has placed general contract with S. M. Siesel Co., 160 Ogden Avenue, local, for construction of a \$300,000 automotive sales, service and storage building, 121 x 134 ft., two stories and part basement.

Terminal Warehouse Co., 274 South Water Street, Milwaukee, has plans by W. Fred Dolke, consulting engineer, 1841 Asbury Avenue, Evanston, Ill., for a five-story cold storage warehouse, 160 x 440 ft., costing \$1,000,000, and a five-story addition, 50 x 100 ft., to existing warehouse. New unit will contain about 1,000,000 cu. ft. of cold storage space. Fifth floor and roof are designed for automobile storage with a capacity of 950 cars.

Glancy Malleable Iron Corporation, Waukesha, Wis., is having survey made by A. A. Wickland, consulting engineer, 7 South Wabash Avenue, Chicago, of present and future needs of works additions and equipment. Project contemplates an investment of between \$50,000 and \$100,000. A. R. Glancy, president Oakland Motor Car Co., Pontiac, Mich., is president.

Ernest Sader Co., Fremont, Wis., dealer in hardware, farm machinery and automobiles, will build a one-story addition, 42 x 80 ft., for service and repairs. Contracts for structure have been awarded and inquiry is being made for miscellaneous equipment.

Board of Education, Neenah, Wis., will close bids April 14 on revised plans for new \$300,000 senior high and vocational training school, designed by John D. Chubb, architect, 109 North Dearborn Street, Chicago. Mrs. J. F. Gillingham is secretary.

Cliffs Power & Light Co., Ishpeming, Mich., subsidiary of Cleveland-Cliffs Iron Co., is doing preliminary work on construction of a new hydroelectric generating plant on Escanaba River, three miles northwest of Princeton, Mich., to cost about \$500,000. Concrete dam will be 400 ft. long and 15 ft. high. Construction of power house will start about June 1. Inquiry will be made shortly for generating equipment. O. D. McClure is general manager.

Interstate Drop Forge Co., 1857 Twenty-seventh Street, Milwaukee, has started work on a one-story shop and office extension, 50 x 90 ft.

National Equipment Corporation, Wells Building, Milwaukee, has been organized to manufacture road building and construction equipment. Company has purchased property of T. L. Smith Co., builder of concrete mixers and pavers, which will be considerably enlarged. At present company has no plans for erection of new plants or buildings.

## Pacific Coast

SAN FRANCISCO, March 23.

**C**ONTRACT has been let by Pratt-Rymer Co., San Leandro, Cal., manufacturer of locks and hardware, to R. E. Nikirk, local, for a one-story factory, to cost about \$17,000 with equipment. Additional plant units will be built later.

Pacific Fruit Express Co., 65 Market Street, San Francisco, has approved plans for new refrigerator car repair

and reconditioning shops on 150-acre tract at Tucson, Ariz., recently acquired, to cost about \$200,000 including equipment.

Methow-Pateros Growers' Association, Pateros, Wash., has authorized plans for a new cold storage and refrigerating plant, to cost about \$100,000 with equipment.

West Lake Engineering Works, Seattle, has awarded general contract to J. C. Buchanan, 2017 Warren Avenue, for a one-story machine shop, 35 x 65 ft., to cost about \$11,000 with equipment.

Clearwater-Hynes County Water District, Hynes, Cal., is planning early call for bids for pumping machinery and accessories and 100,000-gal. elevated steel tank and tower, for proposed waterworks. A bond issue of \$160,000 is being arranged. Burns-McDonnell-Smith Engineering Co., Western Pacific Building, Los Angeles, is engineer.

Great Northern Railway Co., St. Paul, Minn., has plans for a new repair shop at Wenatchee, Wash., for electric locomotives, one story, 82 x 200 ft., to cost upward of \$85,000 with equipment. A traveling crane will be installed. T. D. McMahon, Railroad Building, St. Paul, is company architect.

Barde Steel Co., 2709 Utah Street, Seattle, has awarded general contract to H. D. Stewart, 2702 First Avenue, South, for a one-story addition, 66 x 120 ft., to cost about \$23,000.

Wenatchee Produce Co., Wenatchee, Wash., will build a one-story cold storage and refrigerating plant, 100 x 100 ft., to cost more than \$100,000 with equipment.

Puget Sound Power & Light Co., Seattle, will make extensions in vicinity of Chehalis, Wash., with construction of transmission lines on several highways in Lewis County, for which franchise has been asked. Entire project will cost more than \$75,000.

Western Oil & Refining Co., Martinez, Cal., has leased portion of tract of Petroleum Products Co., and will build a new storage and distributing plant, to cost about \$350,000 with equipment.

Feenaughty Machinery Co., Portland, Ore., has been appointed distributor in Oregon, Washington and Idaho of products of Sidney Steel Scraper Co., Sidney, Ohio.

San Juan Pulp Mfg. Co., Bellingham, Wash., will double capacity of its local plant at a cost of \$200,000.

Ulmer Machinery Corporation, Los Angeles, has purchased plant and business of Acme Pump Co., Los Angeles. Purchasing company formerly operated plants in Santa Ana and Porterville, Cal., but will now consolidate all manufacturing at Los Angeles.

## Canada

TORONTO, April 2.

**M**ARCH made a record for the year in increased business in many lines, including machine tools and other equipment. The automotive industry was responsible for a large portion of the activity although during the past few days orders from this source have fallen off. Considerable buying is still being done for equipment for the mining fields of Manitoba, Ontario and Quebec. In addition to the regular flow of small orders from the railroads, the Canadian National Railways will require a large amount of equipment for its shops at Point St. Charles, Montreal. It will also spend \$450,000 for power plants at this location.

Charles A. Smart, of Canadian International Corporation, Ltd., Westmount, Montreal, is taking out a charter at Fredericton, N. B., in name of Antimony Smelting & Refining Co., Ltd., of Lake George, York County, N. B. Engineers are working on plans for a power house and expect to start soon on development of company's property at Lake George. A refinery will also be built.

Hepworth Mfg. Co., Hepworth, Ont., will build a two-story addition to its furniture factory to cost about \$50,000. Construction will start as soon as weather permits. Wood-working machinery and tools will be required.

La Cie. d'Entreprises Publiques Ltd., 107 Mountain Hill, Quebec, has purchased power plant at St. Pierre les Becquets, Que., and proposes to build a station at a cost of \$100,000.

Donnacona Paper Co., Donnacona, Que., will start work soon on a machine shop to cost \$25,000. It will be two stories 40 x 40 ft.

Copp Clark Co., Ltd., 517 Wellington Street, West Toronto, will build an addition to cost \$75,000. It will be four stories and basement, 60 x 74 ft. Wickson & Gregg, Temple Building, Toronto, are architects.

J. Ford Co., Portneuf Station, Que., manufacturer of roofing felt, etc., has awarded contract to Gauthier & Julien, for erection of a plant to cost \$150,000.

### Western Canada

Winnipeg Electric Co., Winnipeg Electric Chambers, Winnipeg, is having plans prepared for construction of a power



plant at Seven Sisters Falls, Man., to cost \$15,000,000. Work will include transmission line and 14-mile spur railroad.

City of Nelson, B. C., is contemplating construction of additional unit to power plant at Bonnington Falls, to cost \$240,000. A by-law will be submitted to ratepayers.

International Electric Co., Stewart, B. C., contemplates erection of a 2000-hp., hydroelectric power plant to cost \$300,000 in the Portland Canal District.

Hinde & Dauch Paper Co. of Canada, Ltd., Toronto, Ont., will start work soon on erection of a paper mill and box factory at Winnipeg, to cost \$1,000,000.

## Foreign

**P**LANS have been completed by Russian Soviet Government for an electric generating plant near Artemovsk, Konstantinovka district, for initial capacity of 3000 kw. American-Russian Chamber of Commerce, 50 Broad Street, New York, has information regarding project.

Spanish Council of Ministers, Madrid, Spain, has approved a program of railroad construction and improvement to cost 231,000,000 pesetas (about \$39,250,000) for new lines, and 371,000,000 pesetas (about \$63,000,000) for betterments, including rolling stock, shops, tools and equipment. Information at office of Bureau of Foreign and Domestic Commerce Washington, reference Spain No. 63476; also, at American Consulate, Madrid, E. D. Hester, assistant commercial attaché.

## NEW TRADE PUBLICATIONS

**Air Filters.**—Reed Air Filter Co., Inc., Louisville., Bulletin 114, dealing with the company's Streamline self-cleaning air filter. Attached is a data and specification sheet for determining size and type needed.

**Acetylene Generators.**—Alexander Milburn Co., Baltimore. Bulletin B-200C, briefly describing acetylene generators for use with oxy-acetylene welding and cutting apparatus.

**Recording Thermometers.**—Bristol Co., Waterbury, Conn. Leaflet announcing new recording thermometer, with 4-in. chart, for use in cold storage rooms, electrical refrigerating units, and other places where large size thermometers are not required.

**Pumping Equipment.**—De Laval Steam Turbine Co., Trenton, N. J. Leaflet describing water works pumping equipment for City of Haverhill, Mass., for which company has installed two electrically driven centrifugal pumps with capacity of 7,000,000 gal. daily.

**Hoists.**—Union Mfg. Co., New Britain, Conn. Leaflet devoted to company's roller bearing, spur-gear hoist. Special features in construction and operation of hoist are itemized.

**Excavating Machinery.**—Osgood Co., Marion, Ohio. Bulletin 2707, covering company's line of gasoline and electric excavating machinery. Included are electric shovels, cranes, clamshells, draglines and backhoes.

**Flood Lighting.**—Crouse-Hinds Co., Syracuse, N. Y. Bulletin 2106, describing various types of floodlight projectors for industrial units. Bulletin 2109 deals with floodlighting in general, and includes a number of interesting and novel installations.

**Sheet Steel Products.**—Superior Sheet Steel Co., Canton, Ohio. Booklet dealing with lead-sealed sheet steel products manufactured by company. Included are corrugated and other roofing and sidings, flat sheets and formed products, eaves trough, conductor pipe, accessories, etc.

**Boiler Nozzles.**—Lenape Hydraulic Pressing & Forging Co., Box 66, West Chester, Pa. Bulletin 2, devoted to forged steel boiler nozzles, includes tables of various working pressures. Of particular interest are illustrations of two 4-in. nozzles of the 250-lb. W. S. P. type under a severe test of 4500-lb. hydrostatic pressure.

**Rotary Dryers.**—Struthers-Wells Co., Warren, Pa. Bulletin devoted to company's line of rotary dryers, kilns and coolers of the steam heated, hot air, direct heat and indirect heat types.

**Die Makers' Supplies.**—Danly Machine Specialties, Inc., 2104 South Fifty-second Avenue, Chicago. Catalog of 50 pages describing all of company's products. In addition to the die sets, each of which is illustrated by a half-tone and blue print, bushings, dowel pins, a line of

Stewart & Partners, London, England, have taken contract for construction of a beet sugar refinery at Brigg, Lines., to cost more than \$1,500,000 with machinery. Hallesche Mash-fb., Halle, Saxony, Germany, are engineers for the project.

Public Works Department Government of Persia, Teheran, is considering construction of a blast furnace, steel mill and iron foundry in Somnan district, where surveys have been in progress, to develop iron ore deposits. Entire project is estimated to cost \$4,500,000. Plans are also under advisement for construction of aerial cableway from Shamshak, Elburn Range district to Teheran, for coal transportation. Information at office of American Consulate, Teheran, Orson N. Nielsen, consul.

Great Southern Railway Co., Buenos Aires, Argentine Republic, is arranging fund of \$853,000 for improvements, including reconstruction of different portions of road, extensions in repair shops, tools, equipment, etc. Henry C. Evans is president.

J. A. M. Burgman, Nieuwe Gracht 83-85, Utrecht, Holland, is interested in securing an agency for hardware and plumbing supplies and for supplies sold to railroads.

Madagascar Government Railways (Chemins de Fer de Madagascar), Tananarive, Madagascar, has approved project for partial electrification of its line from Tananarive to East Coast, to cost close to \$5,000,000, including a hydroelectric power development on Mangoro River. American Consulate, Tananarive, Paul D. Thompson, vice-consul, has information regarding the project.

socket head and fillister hand stripper bolts and flat, rounded and square springs have been added.

**Drills.**—Sullivan Machinery Co., 122 South Michigan Avenue, Chicago. Bulletin 81-O, providing illustrated description of company's auger drill for drilling very soft ore, coal, soft and broken rock, hardpan, etc., and Bulletin 81-Q, describing the L-3 and L-5 heavy rotator rock drills for medium heavy rock drilling work.

**Developments in Steam Generation.**—Combustion Engineering Corporation, 201 Madison Avenue, New York. Reprint of an address delivered before the Engineers' Society of Western Pennsylvania by George T. Ladd, president Ladd Watertube Boiler Co. There are eight pages, illustrated, giving a comprehensive survey of some modern achievements. High-pressure steam is discussed, as well as steam generating from dry quenching of coke.

**Story of Combustion.**—International Combustion Corporation, 201 Madison Avenue, New York. Reprint of an article by Donald Wilhelm, printed as institutional advertising in both *Review of Reviews* and *World's Work*. There are 10 pages illustrated, dealing with the modern problem of getting the most out of each pound of coal.

**Soot Blower.**—National Flue Cleaner Co., Groveville, N. J. Leaflet of four pages, illustrated, telling about advantages of blowing the tubes of horizontal return tubular boilers at frequent intervals.

**Line-Starting Induction Motors.**—Allis-Chalmers Mfg. Co., Milwaukee. Bulletin 1145 of four pages illustrates and describes induction motors not requiring current reducing devices for starting.

## Branch Office Representatives of The Iron Age

### Editorial

Chicago, Otis Bldg.....	R. A. Flske
Pittsburgh, Park Bldg.....	G. F. Tegan
Cleveland, 1362 Hanna Bldg.....	F. L. Prentiss
Cincinnati, 408 Union Central Bldg.....	Burnham Finney
Boston, Park Square Bldg.....	Gerard Frazer
Washington, 536 Investment Bldg.....	L. W. Moffett

### Advertising

Chicago, Otis Bldg.....	F. S. Wayne
Pittsburgh, Park Bldg.....	W. B. Robinson
Cleveland, 1362 Hanna Bldg.....	Emerson Findley
Cincinnati, 408 Union Central Bldg.....	Peirce Lewis
Boston, Park Square Bldg.....	H. E. Barr
Philadelphia, 1402 Widener Bldg.....	Charles Lundberg
Buffalo, 835 Ellicott Sq.....	B. L. Herman
Detroit, 7338 Woodward Ave.....	Peirce Lewis
Hartford, Conn., P. O. Box 81.....	D. C. Warren
New Jersey, Hotel East Orange, East Orange, N. J., New York, 239 West Thirty-ninth St., W. O. Sweetser, Chester H. Ober	W. O. Sweetser
San Francisco, 320 Market St.....	W. A. Douglass



